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THE
SANITARY JOURNAL,
DEVOTED TO
PUBLIC HEALTH.

VOL. I.]

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[No. 3.

Original Communications.

CIRCUMSPECTIVE REVIEW OF HYGIENE.

“Per varios usus artem experientia fecit
Exemplo monstrante viam.”

At the conclusion of an article on the progressive advance of Hygiene I alluded to the good work in the cause by Howard, Lady Mary Wortly Montague, and Jenner; and instanced some of the reforms accomplished by the former philanthropist. Before remarking on the labors of Lady Montague in the cause of suffering humanity, I will briefly refer to the history, as far as it is known, of Small Pox, the fearful scourge of past ages, which this brilliant and accomplished woman endeavoured to mitigate by the introduction of inoculation. It is a subject of dispute whether this disease was known to the Ancients, or whether it has originated at a comparatively recent date. Those who contend for its antiquity refer us to the account of the plague of Athens, by Thucydides, which, they say, is as accurate a description of the leading symptoms of variola as could possibly be expected from any historian who is not a physician. Those who hold the opposite opinion call in etymology to their aid; the word *pock* or *pox*, they say, is of Saxon origin, and signifies a bag or pouch; the epithet *small* in England, and *petite* in France, were added in the fifteenth century. The first author who

treats expressly of Small Pox is Rhazes, an Arabian physician. But even he confounded it with measles, and these two diseases continued to be considered as a modification of the same disorder till the time of Sydenham. The practice of inoculation for Small Pox was introduced in England by Lady Montague about the year 1721; her son having thus received the disease during her residence in Constantinople. It had long been practised in Turkey and other Eastern countries, and its utility was well known, before its introduction into England, both in the South of Wales and in the Highlands. Mungo Park also found that it was habitually practised by the negroes on the Guinea coast. It was very slowly adopted in England, and it was not until it had been practised on six criminals (whose liberty was promised to them if they recovered, which they fortunately did) that it was generally received. It was then almost universally had recourse to till the introduction of vaccination by Jenner, but since that time it has most deservedly fallen into disuse. Indeed, whatever were the merits of inoculation in lessening the severity of Small Pox in the person inoculated, it was probably on the whole productive of more harm than benefit, by introducing the disease—as it certainly often did—into a district previously free from its contagion; and thus while it saved the life of one person it became the cause of death of many who caught small pox from him. At the beginning of this century the practise was prohibited by Act of Parliament.

Dr. Jenner, a practitioner of Berkely, in Gloucestershire, and a pupil of the celebrated John Hunter, first observed that milkers who had been infected with a peculiar eruption which sometimes occurred on the udder of the cow, were completely secure against small pox. Jenner, during his pupilage with John Hunter, repeatedly mentioned this fact, which had made a great impression on him; but even this acute investigator disregarded him, and all to whom the subject was broached either slighted or ridiculed it. Jenner, however, still pursued his investigations. It was about the year 1780 that the idea first struck him that it might be possible to propagate the

cow pox, and with it the security from small pox, first from the cow to the human body, and thence from one person to another. In 1780 he carried drawing of the casual disease, as seen on the hands of milkers, to London, and showed it to John Hunter, Cline and others; but still none would either assist or encourage him, scepticism or ridicule met him everywhere, and it was not until 1796 that he made the decisive experiment. On the 14th of May (a day still commemorated by an annual festival at Berlin) a boy aged eight years was vaccinated with matter taken from the hands of a milk maid; he passed through the disorder in a satisfactory manner, and was inoculated for small pox on the 1st of July following without the slightest effect. Dr. Jenner then entered on an extensive series of experiments of the same kind, and in 1798 published his first memoir: "An enquiry into the causes and effects of Variolæ Vaccinæ." It excited the greatest interest, for the evidence in it seemed conclusive; yet the practise met with great opposition, and its success seemed uncertain till a year had passed, when upwards of seventy of the principal physicians and surgeons in London signed a declaration of their entire confidence in it—[see Baron's life of Jenner.] The history of the different epidemics of small pox shows the mortality to be one in four of those attacked who have not been vaccinated, whilst of those who had undergone vaccination the proportion was not one in 450. With such wonderful results it is not a little surprising that indifference to vaccination, and occasionally open hostility, as recently evidenced by some physicians of Montreal, should yet have to be met, and it would be a great boon to the public if our Provincial or Dominion Legislature would pass an Act rendering vaccination absolutely compulsory. The Act of the Session before last, if not entirely inoperative, is clearly not equal to the occasion, as systematic Government inspection was not made a provision in the Bill.

Dr. Aitken, in his work on the Practice of Medicine, thus speaks on the subject:

"The present position of our knowledge regarding vaccina-

tion is based upon evidence which demonstrates, 1st—The protective influence of vaccination, and 2nd—The causes which have combined to impair its protective powers. 1st—To prove the influence of vaccination in England, it is shewn that out of every 1000 deaths in the half century from 1800 to 1850 there were only 35 deaths from small pox. 2nd—To prove the influence of vaccination on the Continent, it is shewn that in the various German States sufficient evidence can be obtained to show that out of every 1000 deaths before vaccination was used, 66.5 were deaths from small pox; but that out of every 1000 deaths after vaccination came into use, the deaths from small pox were only 7.26. To prove that in countries where vaccination is most perfectly carried out small pox is least mortal, it is shewn that—

(a) In this country, where vaccination has been voluntary, and frequently neglected, the deaths from all causes being 1000, the deaths from small pox were as follows: London, 16; Birmingham, 13.6; Leeds, 17.5; England and Wales, 21.9; Perth, 25; Paisley, 18; Edinburgh, 19.4; Glasgow, 36; Galway, 35; Limerick, 41; Dublin, 25.6; Connaught, 60; All Ireland, 49.

(b) In other countries, where vaccination has been more or less compulsory, the deaths from all causes being 1000, the deaths from small pox were as follows: Westphalia, 6; Saxony, 8.33; Rhemish Provinces, 3.7; Pomerania, 5.25; Lower Austria, 6; Bohemia, 2; Lombardy, 2; Venice, 2.2; Sweden, 2.7; Bavaria, 4.

Similar corroborative evidence of these results has been adduced by Dr. Balfour from the records of the Army and Navy Medical Department, where compulsory vaccination prevails. For twenty years, namely from 1817 to 1837 inclusive, it is shown that in Dragoon regiments and Guards, with an aggregate strength during that period of 44-611 men, and a total mortality of 627, only three deaths were from small pox. 2nd—Among the troops at Gibraltar, the aggregate strength being 44-611 men during that period, and a total mortality of 1291, only one death from small pox occurred. 3rd—In

the West Indies several epidemics of small pox prevailed during the period, but there were no deaths either among the British or white troops, of whom the aggregate strength was 86,661, and with a total mortality of 6,803. Among the black troops on the same station, with an aggregate strength of 40,934, and a mortality of 1,645, there was not one case of small pox.

Similar results are exhibited by the tables for Bermuda, Nova Scotia, New Brunswick, Cape of Good Hope and the Mauritius, not a death occurred from small pox during the twenty years mentioned. The actual extent of the security against death from small pox enjoyed by vaccinated compared with unvaccinated persons has been calculated by Mr. Simon from various sources, and it appears that the death rate from small pox amongst the vaccinated varies from an unappreciable small mortality to $12\frac{1}{2}$ per cent; that amongst the unprotected the death rate from small pox ranges from $14\frac{1}{2}$ to $53\frac{4}{5}$ per cent.

To the protecting and modifying influence of vaccination fifty years ago the general assent of the profession was given, now Dr. Aitken justly remarks, it would seem at first sight an insult to human understanding to be obliged to collect statistics to prove the necessity for vaccination. The humiliating fact remains, that but a short time ago physicians were to be found in Montreal protesting against its employment. Montague, in his Essay on Experience, thus speaks of such commentators: "Men do not know the natural disease of the mind; it does nothing but fret and inquire, and is eternally wheeling, juggling and perplexing itself, and, like silk worms, suffocates itself with its own web; '*Mus in pice*—a mouse in a pitch barrel,' it thinks it discovers, at a great distance, I know not what glimpse of light and imaginary truth; but whilst running to it, so many difficulties, hindrances and new inquisitions cross it, that it loses its way and is made drunk with the motion."

(To be continued.)

A BUREAU OF SANITARY STATISTICS WANTED.

To the Editor of the SANITARY JOURNAL :

SIR,—It appears to me to be the duty of every medical man, both in Parliament and out of it, to exert all the influence he can command in order to bring such pressure upon the Government as will induce it to establish as early as possible a Bureau of Sanitary Statistics. This is a matter of such vast importance that it cannot be too frequently or too forcibly brought before our legislators and the public. During last session, after Dr. Brouse had moved in the House of Commons for a select committee to consider the propriety of asking for legislation with a view to the establishment of such a Bureau, Mr. McKenzie promised to give the matter his attention, and if possible to bring in a Bill for this purpose next session. It is certainly a subject not second to any other, and it is to be hoped that the Hon. gentleman has not permitted other subjects of less importance to render it impossible for him to bring forward such a Bill. It is altogether probable that if he gives it sufficient attention he will not fail to see the great benefit such a measure would confer upon the public, and would then do all in his power to bring it forward.

The work of Sanitary Reform is the most positively beneficial, the most beneficent and profitable, which the science of a country can produce. Franklin has truly said that "public health is public wealth." Unquestionably the first step toward Sanitary Reform would be the establishment of a Bureau for the collection of sanitary statistics. We must devise some means of getting at the precise data of mortality, and perfecting our knowledge of predisposing and proximate causes of disease. To this end, a Registration Bill, with a clause sufficiently stringent to insure regular and full returns, is indispensable. These returns should not only include the age, sex, occupation, and immediate cause of death, but should also give the hereditary tendency, if any, the general condition of surroundings as regards the purity of the air and water, meteorological conditions, whether temperate in all respects

or otherwise, general habits, whether regular or otherwise as regards hours of sleep and periods of taking meals, whether abstemious or a free liver, or addicted to the use of tobacco or strong tea or coffee, or whether a bath is used habitually, or what is worn next the skin; and indeed all such information as the medical attendant might deem to be useful. And here it is, while dealing with the subtle and remote influences which so greatly intensify the death rate, that the importance of the medical profession must be recognized. For as Dr. Botsford, of St. John, N. B., at the meeting of the Canada Medical Association in 1873, observed, "Our profession stands first, and pre-eminently first, in its qualifications for investigating this broad field of causes."

"A belief is now gaining ground and acquiring a hold on the popular mind" says Dr. Aitken, in his late work on the Science and Practice of Medicine, "that advances in the science of Medicine in future years will be mainly due to a better appreciation of the causes of disease." If the latter clause of this sentence be true, deep indeed should be the interest taken by all medical men in all legislation having for its object the establishment of a department for the collection of complete sanitary statistics.

In conclusion, then, I must say that I too should be glad, as you observe in the first number of the *SANITARY JOURNAL*, "to find the next effort on the part of *the* profession directed toward Sanitary Enactments." Then, possibly, there would be fewer insinuations by the vulgar, which are, however, in all probability, more apparent than real, though always unpleasant to a sensitive mind, that doctors revel and "hold high carnival" when disease is rife and epidemics prevail.

Yours, &c.

M. D.

LONDON, ONT., Oct. 20th, 1874.

A NURSE was recently fined 40s. and costs, in London, England, for having conveyed a servant suffering from scarlet fever to the Fever Hospital in two tramway cars successively.

Selected Articles.

PHYSIOLOGY OF INTEMPERANCE.

By A. H. DANA, New York.

In the accomplishment of any great reform there seems to be a necessity for zeal that will not be confined to exact proof. We overlook any error in consideration of the good which is sought. The agitation of the public mind in respect to *temperance* is no exception to the proposition above stated. The time has come, however, when the reformation desired should not depend upon highly colored statements not strictly accordant with scientific analysis, but upon sound practical principles.

It is often reiterated by lecturers on temperance, that there is no nutrition in alcohol—that it furnishes neither alimentation nor heat to the body; which statements are professedly based upon chemical tests: but they are hardly sustainable without considerable modifications. Alcohol does for a short time accelerate the blood circulation, and during that time produces increased vigor; but then follows a relapse—a *devitalizing* process that diminishes animal heat and vigor of body and mind. That it is not assimilated is true so far as this, that it is largely carried off by the kidneys, exhaled by the lungs and exuded from the skin; and it is likely that other fluids of the body pass off to some extent with it. Saliva and the gastric juices appear to be dried up in like manner as by fever. * * * *

The true method of dealing with the subject is by *observation of effects* rather than *deduction from any chemical theory*, the latter is in fact of little more practical use than the hypotheses of *monads* or *atoms* insisted upon by Epicurus—or of the *vortices* maintained by Descartes—is in explanation of the physical constitution of the world.

An argument of chief importance is derived from the *morbid craving* induced by intoxicating drinks. A man that takes a dram to-day will surely want it to-morrow. Those who drink daily are the most punctual in time—in no business engagement are they so exact—not even at meals. Another incident equally marked is the desire of a larger potation, consequent upon successive indulgence, and this, when there is not much self-control, ends speedily in drunkenness—or if a

man has resolution enough to avoid that extreme he still has a gnawing sensation of uneasiness that unfits him more or less for business. It is almost invariably seen that whoever takes an intoxicating drink daily, becomes a loungeur, wasting part of his time in unprofitable talk; generally will be a frequenter of bar-rooms or other like places of resort, and this will grow upon him as he drinks oftener.

Aristotle sets down in the class of intemperate men, not merely those who actually indulge to excess, but those who have a *desire* for such indulgence, and feel a pain for want of it. In the early stage of intemperance there is something exceedingly deceptive. The desire seems not to be very strong; a man thinks he can easily break off. Nothing is more common than to hear moderate drinkers say they can give up the habit whenever they choose. Let such an one try it and he will find that what he thought was merely voluntary is a *power like that of the many-armed sea monster that fixes a fatal grasp while yet the victim is at a distance and unconscious of the presence of his enemy.*

Again there is a deception in advanced life, a feeling of security in the formation of a new habit. It is not likely (thinks the respectable elderly man) that at my time of life I should fall into excess when I have always heretofore been regular. *Yet nothing is more likely than if indulgence be yielded to at all it will under this false security become excessive,* and the instances are not unfrequent of men who were in early youth exemplary, giving themselves up to unlawful gratifications in later years. Balzac has sharply depicted a proclivity to sensual pleasure between the ages of fifty and sixty, when is often seen an infatuation wholly beyond control. This theory applies not merely to the passion of love—whatever may be a man's propensity is apt at that age to break through restraint.

Plato rebuked a man for playing at dice, who answered that he was only playing for a *trifle*. But, said Plato, is the *habit* a trifle? Of all habits none are so controlling as indulgence in strong drink. The appetite is constantly increasing, while moral energy is becoming weaker. In the ordinary course there is therefore little hope of reform, and it is rare to see complete recuperation; loss of fortune, pains of disease, misery of his family, do not reclaim the confirmed inebriate. *The fear of such results* may check in some degree the moderate drinker, but in most cases even this is only for a time. His mind becomes clouded, his moral perception impaired, and

while he may be conscious of his weakened condition and its cause—still he will seek temporary strength in the fatal expedient of more frequent stimulant. * * *

The most interesting subject of inquiry is in respect to the formation of the habit. Reformation after the habit is established is, as before remarked, unusual. The chief good to be accomplished by admonition is to deter the rising generation from exposure to the temptations which have been fatal to so many in the past.

1. The lowest of all the causes of intemperance is a mere animal propensity, a desire of mere sensuous exhilaration, the stirring up of emotional activity in an organism which is by nature gross and inert. This comes usually by inheritance, in fact it is one of the retributions that by a mysterious Providence is entailed upon the descendants of profligate parents.

The sensualist, whether man or woman, will stamp upon his or her offspring the marks of vice; and especially will intemperance in drink display its baneful influence through several generations. In fact with the increasing power of hereditary proclivity descending from father to son, there would seem to be no hope for a family subject to the consequences of ancestral vice—and so it would be but for counteractions interposed by a like process of nature. There is a warning in the frail constitution which is one of the incidents, and the predisposition to an early death. Greater care is therefore made necessary—yet this is generally insufficient at least during the first generation, to prevent the fatal development in early life of the vice inherited from a depraved ancestor. If there should be physical strength there will be gross indulgence. But whatever the cause may be, whenever there is an inert habit of body without moral refinement, brutish vices are apt to be developed, especially intemperance, and there is ordinarily no cure for this but what nature has provided, viz: the pain of disease—which if unheeded, an early death or a wretched imbecility is the alternative.

2. Another phase of the habit is when misfortune has imposed a hard condition of life upon one accustomed to better things,—or when by hereditary poverty there is a necessity for greater labor than there is capacity to bear. In such cases it is not unfrequent that *a temporary support is sought in stimulants, or inebriation resorted to as a relief from despair.* In these conditions it is obvious the most effectual method to prevent the habit becoming fixed, or if reclaimed from it after being confirmed—is by respite of the body overtaxed with

labor, or by solace to the mind crushed with calamity. Many well-meaning people make a great mistake in addressing harsh rebuke to persons of this class. This is only adding to the intolerable weight that already oppresses them; and although there is a low condition of humanity in the inebriate, yet when sorrow or hardship is the cause, there is still a sensibility to kindness—sympathy will do much even unaccompanied by any other gift; but of course the ills of poverty require additional relief. It is reported that in the English factories intemperance is largely prevalent. It is because the operatives are overworked and hopeless of any change for the better. Religious appeal is of little avail without some other aid—or if effectual at all, will be so only as it is addressed to those expecting soon to die. Christian consolation is best administered to sufferers of this class by those who have been subject to like hardships—*the poor are the best alleviators of the poor*. The general habit of mind induced by poverty and hard work, is disbelief of divine goodness and distrust of human ostentation of benevolence. Modern civilization has developed charity for the destitute, as is shown by *hospitals, asylums*, and even by our *prisons*,—but the evils to be contended with are also vastly increased by the overcrowding of population—especially in large cities. * * *

3. Another class of men have a sensitive organism, the usual adjunct of an emotional temperament, or have great intellectual power which constantly overtasks the bodily capacity. The first is the case of genius in poetry, music, and the like—there must be reaction after great *exaltation*—call it *effort* or *inspiration*. There is a collapse—a sense of feebleness—which is unendurable. A stimulant will rouse energy—who will be so rigid as to say there is not some excuse for resorting to such artificial aid? That it is exhaustive and will in the end be fatal to the natural powers of the mind, is well enough known by those who judge by statistics—but no amount of proof will convince one who is in a *syncope* and can get *present* relief even if it be in a mode prohibited by hygienic science.

There is a tradition that Shakespeare died prematurely from the effect of convivial habits; this is not sufficiently proved—in fact we know little of his private life at any period, and more especially after his retirement from the stage.

We may follow this out in men of great intellectual power in other pursuits. An ardent devotion to science is exhaustive. There is no alternative but entire abstinence or

habitual and in the end excessive indulgence. Great philosophers have usually been abstemious; but they have also been much secluded from the world.

The seclusion referred to, was rather privacy—exemption from interruption or intrusion; and it is certain that continuous labor is better endured than irregular efforts.

We know now unmistakably that the great novelist of our own time who enchanted the world by a power that like Shakespeare seemed as if inspired—certainly underived from culture—died prematurely from inebriety at an age but little beyond that of the renowned dramatist.*

Can it be justly argued from such examples that genius derives any of its inspiration from this self-consuming process, or that in any sense this artificial stimulation of forced effort is a refocalization of mental vigor. This would be unwarranted. On the contrary, the law of nature is that all human excellence is by normal development from a germinal element. The grand conception of the intellect and the splendor of poetic imagery and diction, must come from the mysterious, perhaps heaven-born power of the soul in the exercise of its natural functions. No promethean fire can be brought down in aid of this congenital endowment.

From this source has been derived all that is left to us by human genius. It is only when the natural power has been overtaken that the auxiliary has been thought needful—but whatever has been then produced is only by an enforced effort of nature wasteful of its inherent vigor,

Great thinkers, or men of great intellectual endowment of any kind, brought into public life, have often fallen victims to too great pressure. Mr. Pitt was undoubtedly intemperate, but in an aristocratic style. Sheridan, who deserves a much higher estimate than that of a mere rhetorician, as he has been commonly rated—who was in fact a man of great ability, while he was most affluently gifted with oratory and colloquial wit, became an inebriate. Our own country has furnished memorable instances of the wreck of statesmen.

Who will fail to call to mind as chief in this sad category, the great Massachusetts senator—in intellectual power never surpassed—but weak in moral resolution to resist sensual proclivities. There seems to be a tendency in political life to the sin of intemperance. Our Federal and State Legislature give testimony to this. The *present* is all—the *future* is uncared

*Dickens died at the age of 56; Shakespeare at 53.

for. Douglass almost achieved success in his mad effort to gain the Presidency, but obtained instead a drunkard's grave.

Poets and other imaginative writers have been prone to physical stimulants. These can not be said strictly to have been overtaken—that is to say not by any *continuous* labor—their phase has rather been that of *irregular activity* alternated by *apathetic depression*. If we confine our observation to men not of great celebrity, we shall still find that whoever is overtaken—whether it be by labor too long protracted or by an effort exceeding what his natural power is equal to, will be likely to resort to artificial aid.

4. Lastly, there is a class who are led into intemperance by mere conviviality. Such men are usually endowed with conversational attractiveness, and whether they are guests in a private circle or attend the more sensual entertainment of public dinners, or become the oracles of the club or of the bar-room, the temptation is the same. A reputation is to be maintained; where the spirits flag, artificial aid must be used—at least so thinks the brilliant talker or speech-maker, when he is not in his best mood.

We have touched upon all the predisposing causes of intemperance. The lesson to be deduced is, not so much how to reform (though this should be sought as far as practicable) as how to guard against the evil in its inception.

We conclude with the following aphorisms, which are of general application—perhaps *hygienic* rather than *moral*—but calculated to secure as well efficiency of mind as body—*mens sana in corpore sano*.

1st. Let every man use the powers which God has given him strictly in accordance with their natural scope, and be content with that measure of active efficiency and influence appertaining to these powers in their healthful development. To aspire beyond this is to attempt rashly a scheme of life not designed for him, and which if pursued, will be abortive and likely to end in misery and vice.

2nd. Avoid all resorts to artificial aid for the purpose of obtaining a *temporary* vigor, either of mind or body. Any thing beyond the natural supply of force by the aliment of healthful food, only reacts and is followed by depression. Especially is this true of alcoholic exhilaration. It may promote convivial wit an hour or two in the evening, but it makes a dull and ill-natured companion in the morning. For any serious and continuous labor it is as unfit as the running of a horse up hill in order to get greater impetus—a forced effort resulting in a more speedy exhaustion.—*Sanitarian*.

MENTAL CULTURE.

BY NATHAN ALLEN, M.D., LL.D.

In the advancing knowledge of physiology it has been discovered that all mental culture should be based upon the brain—that education should be pursued in harmony with the laws of life and health, and that where these are violated, the advantages of the former afford poor compensation. Formerly, no attention or scarcely any was paid by school boards and teacher, in the matter of education, to the condition of the body or the development of the brain, and even at the present day very little is paid them, compared with what should be given those great physical laws which underlie all mental culture. The lives of a multitude of children and youths are sacrificed every year by violating the laws of physiology and hygiene, through mistaken or wrong methods of mental training; besides, the constitution and health of a multitude of others are thus impaired or broken down for life. Nowhere else in society is a radical reform needed more than in our educational systems. Inasmuch as the laws of the body lie at the foundation of all proper culture, they should receive the best consideration. But in educating the boy or girl, from the age of five to fifteen, how little attention is given to the growth and physical changes which necessarily occur at this most important period of life! The age of a child should be considered; the place of schooling, the hours of confinement and recreation, the number and kinds of studies, together with the modes of teaching, should all harmonize with physical laws—especially those of the brain.

The system or mode of treating, in education, all children, as though their *organizations were precisely alike*, is based upon a false and unnatural theory. Great injury, in a variety of ways, results from this wrong treatment; in fact, injuries are thus inflicted upon the sensitive organizations and susceptible minds of young children, from which they never recover. That many of our most independent and clear-headed educators themselves express so much dissatisfaction with the working and results of our schools, affords evidence that something is wrong in the present system. As we contemplate the great improvements made in education for the last thirty or forty years, and are surprised that educators were content to tolerate the state of things then existing—so will the next generation, when still greater and more radical changes shall

have been introduced, look back with astonishment at this generation, and wonder that it was so well satisfied with its own methods. When our educators become thoroughly convinced that physical development as a part of education is an absolute necessity—that a strict observance of the laws of physiology and hygiene is indispensable to the highest mental culture, then we shall have vital and radical changes in our educational system; then the brain will not be cultivated so much at the expense of the body, neither will the nervous temperament be so unduly developed in proportion to other parts of the system, now so often bringing on a train of neuralgic diseases which cannot easily be cured, and exposing the individual to the keenest and most intense suffering, which all the advantages of mental culture fail, not unfrequently, to compensate.

The more this whole subject is investigated, the more reason we shall find for making allowances, or some distinction in scholastic discipline, with reference to the differences in organization of children, and for adapting the hours of confinement and recreation, the ventilation and temperature of school-rooms, the number and kind of studies, the modes of teaching, etc., to the laws of the physical system. But another and still more important change must take place. Some time—may that time be not far distant—there will be a correct and established system of *mental science*, based upon physiological laws; and until this era arrives, the modes and methods of education must remain incomplete and unsatisfactory. The principles of this science, in the very nature of things, must rest upon a correct knowledge of the laws and functions of the brain; and until these are correctly understood and reduced to a general system, all education must be more or less *partial, imperfect and empirical*.—*Sanitarian*.

THE EFFECTS OF WORRY.—That the effects of worry are more to be dreaded than those of simple hard work is evident from noting the classes of persons who suffer most from the effects of mental overstrain. The case book of the physician shows that it is the speculator, the betting man, the railway manager, the great merchant, the superintendent of large manufacturing or commercial works, who most frequently exhibits the symptoms of cerebral exhaustion. Mental cares accompanied with suppressed emotion, occupations liable to great vicissitudes of fortune, and those which involve the bearing on the mind of a multiplicity of intricate details, eventually break down the lives of the strongest.—*Chambers' Journal*.

VACCINATION ;—THE COMPARATIVE MERITS OF
LYMPH AND THE DRY CRUST.

(BY JOHN MORRIS, M.D., BALTIMORE.)

As the public journals announce a new outbreak of small-pox in the city of New York, and as its appearance there is generally a fore-runner of an epidemic throughout the country, it would be well to consider all the causes that lead to its development and the best means to prevent its dissemination.

Our experience of small-pox epidemics is that the German and Irish, vaccinated in the European mode, are principally the sufferers, and though there is a great deal of careless vaccination practised in the United States, we suffer greatly less than the people of Europe from invasions of small-pox.

The great difference that exists in the views and practice of the profession in this country and Europe in regard to the proper plan of vaccination, has not heretofore been a subject of investigation, nor has it excited the interest which, in our judgment, it justly merits. It is time that this matter should receive the attention of the profession; and our European brethren, in view of the dreadful epidemic which has for the past three or four years ravaged the continent, would do well to make it a subject of inquiry, and see if there be not some defects in their present system of vaccination which may be remedied.

At the outset, it may be premised as a fixed fact that a true vaccination is a certain preventive of variola, and that an outbreak of small-pox can only spring from defective or imperfect vaccination. No medical man of education and experience doubts this proposition. This being admitted, it becomes our duty to see that the fullest extent of protection is secured to the community by the employment of the best and surest means of vaccination.

There are three forms of vaccination at present employed: first, animal vaccination; that is, with virus taken directly from the heifer. Second, human vaccination, as practised in Europe, in the form of fresh lymph taken from the vaccine vesicle, at an early stage of its development. Third, human vaccination, as practised in the United States; that is with virus taken from the dry pustule or crust.

As it is our purpose in this paper to discuss only the question of vaccination by liquid lymph and the dry crust, we shall say nothing in regard to animal vaccination. The thorough

examination of its merits and demerits, brought about by the late epidemic of small-pox in Europe, has given every one an opportunity of judging of its efficacy or usefulness, (we may however, remark, *en passant*, that in this country it has gained no new adherents). The two forms of human vaccination, then, are only to be compared and discussed. Our own experience favors the employment of the dry crust, as practised in the United States, for reasons to be adduced.

It is not generally known that there is a very marked difference in the character of the disease produced by the two forms of vaccination, so marked as at once to enforce the most earnest enquiry. The stages of the vaccination are entirely different in the two modes, and the growth of the vesicle and the period of maturation are entirely dissimilar. In vaccination with liquid lymph, the vesicle begins to form on the third or fourth day, and the areola on the fifth or sixth day; in vaccination with the crust, the vesicle does not commence to form before the seventh or eighth day, and the only evidence to be discovered before that time of the virus having taken is a few small inflammatory points, which make their appearance about the fifth, sixth or seventh day. (The later these points begin to show, the better and more effective is the vaccination). A careful observation of two vesicles produced by the two methods of inoculation will demonstrate that the pustule produced from the dry crust possesses different elements of action, and yields different physiological results. In vaccination with the dry crust, the vesicle does not begin to form, as already stated, before the seventh or eighth day, when constitutional symptoms first become manifest. These symptoms are more general and better marked, though the local irritation is not greater than in vaccination by lymph. The true characteristic areolar test is always to be discovered when the crust is used, but in the case of lymph, particularly when it is taken from the arm at a very early stage, it is not always to be found, a starved, over-inflamed vesicle taking its place. The maturation, too, of the vesicle is different. In vaccination by lymph, the pustule desiccates and falls off about the fourteenth or fifteenth day, or earlier; whereas with the crust this does not usually take place before the twentieth or twenty-first day, and then frequently the crust has to be removed by the operation. The cicatrix, too, is different in the two forms, and this is important, for its distinctive marks are always held as a guide to and test of a true vaccination. When the crust is used, we have a deep, cup-like, foveated, indented cicatrix,

when lymph is employed, the indentation is superficial, and the other test marks frequently wanting.

Having thus stated the difference observable in the two forms of vaccination, we now proceed to give the reasons for our preference for the dry crust.

1. In vaccination with the crust, particularly if done by scarification, failures are infrequent, indeed exceptional; whereas with lymph they are exceedingly common as any one who has read the English medical journals for the past five years cannot have failed to discover.

2. Lymph virus deteriorates more readily and is not so easily kept as the crust. Dry lymph, when used from tubes or points, almost invariably fails. There can be no doubt about the deterioration of lymph. Dr. Short, the Superintendent of the Madras Presidency, in an article in the "Madras Journal of Medical Science," says that this fact is evidenced by the more rapid course of the vesicles and the occurrence of extensive local irritation.

3. Lymph taken from the arm at an early stage of the vaccine disease, before fever has set in or constitutional symptoms have fully manifested themselves, does not contain those morbid elements necessary to protect the system from variola; whereas in the dry crust these elements are found in an active and concentrated form. If this view be correct, it affords an explanation of the European system of vaccination. In England they take lymph from the arm before the areola commences to form, indeed frequently as early as the fourth or fifth day. Doctor De Hovel, in a communication to the "Lancet," says the earlier the period the better: and in the instructions published by the Lords of Her Majesty's Privy Council for the guidance of the profession, we find the following clauses: "7. Take lymph on the day week after vaccination, at the stage when the vesicles are fully formed and plump, but when there is no perceptible commencement of areola." Clause "8. Consider that your lymph ought to be changed, if your cases, at the usual time of inspection on the day week after vaccination, have not, as a rule, their vesicles entirely free from areola." Here then the old-fashioned, much-prized areola test, to which Jenner himself attached so much importance, is not only ignored but condemned, and a vesicle selected concerning the character of which there can be no certainty. In Paris, the employment of lymph furnished by M. Lanoix, during the late epidemic, proved almost an absolute failure, and even pure animal lymph was unsuccessful in twelve of thir-

teen cases vaccinated by Doctor C. Paul, at Hospital Beaujou.

4. Sequelæ of an unpleasant character frequently follow lymph vaccination; whereas with the crust they are exceptional. In three thousand cases of vaccination by the crust in our own practice, only one single case of local irritation of an unpleasant character occurred. This point is not sufficiently regarded. Evidences of an unhealthy condition of the vaccinefer's system can be readily detected by a careful examination of the growth and maturation of the pustule; but where lymph is taken from the arm at an early day, no such evidences can possibly be diagnosed.

5. Vaccination by lymph does not protect the patient, but necessitates a re-vaccination; whereas a true vaccination by the crust affords thorough protection. In a late number of the "Lancet," the editor says, that re-vaccination is urgently necessary; and Mr. Marson reports that in 751 cases admitted to the small-pox hospital, 618 or 82 per cent, were in vaccinated persons. We are convinced that no such result could follow in this country. A genuine vaccination here, in our judgment, affords as much protection as virioli itself.

The reasons that have been urged against the employment of the crust are very trivial. The theory that blood may be taken up and constitutional diseases propagated by its use, as suggested by Doctor Anstie, is entirely groundless, as is also his view in regard to the danger of pus.

Doctor Blane's arguments in favor of animal vaccination and the reasons he urges for the use of lymph from the heifer, in preference to human lymph, do not apply to the crust. None of the evils he attributes to human vaccination are to be found in the American mode; but as animal vaccination itself has been in some degree a failure, and has, at times, some unpleasant consequences attendant upon its use, we cannot accept it in lieu of the crust, which has proved so generally serviceable in this country. It may possess advantages over human lymph, but the crust is superior to both.

The history of the late epidemic of small-pox in Baltimore confirms the truth of these views. * * *

One word in conclusion, in regard to the number of punctures or vesicles necessary to protect the patient. In Europe, as we have already seen, three or four are usually made, but with us, one is found to be sufficient. From it we get all the constitutional effect necessary without any undue local irritation. Jenner and his followers made but one puncture, and we are content to abide by the decision and practice of the early fathers.

EXPERIENCES OF DOCTORS.—Enricus Cordus, three and a half-centuries ago, thus recorded his experience in the healing art :

“ Tres medicus facies habet : unam quando ragatur,
 Angelicam; mox est, cum juvat, ipse deus.
 Post ubi curato, poscit sua præmia, morbo,
 Horridus apparet, terribilisque Sathan.”

(“ Three faces wears the doctor : when first sought,
 An angel's ;—and a God's, the cure half wrought ;
 But when, that cure complete, he seeks his fee,
 The devil looks less terrible than he.”)

Pope, though not a physician, sang in a like strain :

“ God and the doctor we alike adore.
 But only when in danger, not before :
 The danger o'er, both are alike requited.
 God is forgotten, and the doctor slighted.”

Dr. Clarke, of Princeton, Ont., last year, in the *Canada Lancet*, writes :—“ The public is far from being grateful to its best benefactors, but an approving conscience is never unkind. We are appealed to with great fervor when danger is near, and a strong affection is apparent when disease, or it may be death, is tugging at the heart-strings ; but when rosy health returns, in many cases sarcasm, irony, and often bitter invective take the part of endearing epithets and words of eternal friendship, *especially when bills are presented.*”

PROPAGATION OF SCARLET FEVER.—The *Medical Press and Circular* (London, Eng.,) for September, alludes to a report presented at the last meeting of the Lincoln Board of Guardians, by Dr. Harrison, on the above subject. In the course of his remarks, he said that “ he looked upon village schools as the centres of contagion of scarlet fever in the rural districts, numbers of cases he had enquired into having been sent home ill from school. He thought those who had the authority to close schools during harvest time should certainly exercise their power, and close them during the prevalence of contagious fevers.”

“ There needeth not the hell that bigots frame
 To punish those who err ; *man* in himself
 Contains at once the *evil* and the *cure* :
 And all-sufficient nature can chastise
 Those who transgress her law :—she only knows
 How justly to proportion to the fault
 The punishment it merits.”

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SANITARY REFORM.

In another part of this number may be found a communication touching upon Sanitary Reform and the establishment of a Bureau of Sanitary Statistics. The work of Sanitary Reform—the creation of such a Bureau being regarded as the first step—is certainly one of the most important which the Government of the country could enter upon. The expense it would involve would not equal the expense to which its neglect gives rise, and might be paid out of the funds which are now employed for the relief and cure of disease arising from preventable causes, and for the temporary relief of poverty and the punishment of crime arising therefrom. This constantly recurring sickness and consequent impaired health gives origin to a feeble population and to more misery and suffering, mental and physical, more degradation and crime, than perhaps any other cause; not even excepting intemperance. For who can know the amount of intemperance to which a neglect of sanitary administration gives rise? Who can ever know of the thousands who in cities and towns leave their squalid and wretched abodes of misery—rendered squalid and wretched by accumulations of filth, by foul air and absence of sun-light—of the depressing and degrading effects of which they are probably for the most part in ignorance—and seek temporary relief, momentary comfort, and perhaps semi-oblivion, in the stimulus afforded by alcohol. By aiding in the work of sanitary reform, those who are

working so hard and so nobly against intemperance would render valuable assistance to the temperance cause. Too often and too commonly is intemperance regarded as the cause, instead of the effect, of the unhappiness and filth, and consequent sickness, in the overerowed, ill ventilated, and dark abodes of the poor and degraded.

A properly organized Health Board could remove these causes, prevent these dire effects. We have our Boards of Health. Wherefore? What do they accomplish? The Lieutenant-Governor may by proclamation establish a Central Board of Health whenever the "Province or a part thereof appears to be threatened with any formidable epidemic, endemic, or contagious disease." Why wait until it appears we are threatened with such calamities? Better of course to have it even then than not at all. But it might then be almost too late for such a Board to act efficaciously. Though the constant and permanent existence of a Central Board of Health would not be able to prevent us being threatened from without the Province, or even invaded, by formidable epidemic or contagious diseases, it might do very much in the way of rendering their effects much less serious than they otherwise would be, and very greatly diminish the amount of endemic disease. If it could be made as effectual as such Boards are found to be in certain of the United States—Massachusetts and Minnesota for example—it could at least reduce the average sick rate as much as one-fourth, and the average death rate as much as one-fifth; and reduce the infant mortality one-third, while increasing the health and vigor of offspring.

SHADOWS FROM THE WALLS OF DEATH.—At the Quarterly Meeting of the Michigan State Board, in July last, Dr. Kedsie presented specimens of arsenical wall-papers, from various sources, which he had appropriately inscribed "Shadows from the Walls of Death." One square foot of surface of one sample of the papers presented contained 1.16 gr. of arsenic. He cited several cases of poisoning from such papers.

BED--ROOM VENTILATION.

Next in importance to the ventilation of school-houses—a subject noticed in the September number of the *SANITARY JOURNAL*—is the supplying of bed-rooms with abundance of fresh air. A large portion of life, nearly one-third, on an average, is spent in the bed-room. During sleep, too, the power of the system to resist the effects of morbid influences is less than at other times, when the body is in a state of greater or less activity, hence there is at that time a greater necessity for carefully avoiding all exposures to insanitary influences. The dullness, headache, and want of appetite so common in the morning, especially in those who are not vigorous, are usually caused by sleeping in small, badly ventilated rooms, and re-breathing, over and over again, the same atmosphere.

Some persons, without knowing why, have an unaccountable horror of night air. But it is necessary that it shall be breathed, the whole animal creation breathes it, and the only way in which we can avoid it is by shutting ourselves in perfectly air-tight rooms. These, in order that each individual shall be provided with a full supply of tolerably pure air, should have capacity for from 20,000 to 25,000 cubic feet per head, or about 3,000 cubic feet per head per hour. This would render it necessary for our bed-rooms to be at least ten times the present average size. It may be asked, how is it that so many live through the night shut in seven by nine rooms? It is because such rooms are far from being air-tight. A certain amount of fresh, cooler air is constantly entering through cracks and crevices about windows and doors, while the fouler, warmer air is forced out through other cracks and crevices. But this is very far indeed from being sufficient. The area of inlets for the admission of fresh air, according to Dr. Parkes, should be about 24 square inches per head, in ordinary conditions of the atmosphere. Though obviously the size must vary somewhat with atmos-

spherical vicissitudes. The area of outlets for the foul air should be about the same.

Where special ventilating apparatus is not provided, tolerably good ventilation may be obtained by lowering the upper sash of a window a little, and raising the lower sash, thus providing inlet and outlet. The bed should not stand too near and directly opposite the open window, or in a current of air which would be distinctly perceivable to the occupant. During the day, the bed-room and bedding should be thoroughly exposed to fresh air by the free opening of doors and windows.

BLOOD AS FOOD.

It appears somewhat strange, in this age when almost everything is utilized to the highest degree, that some means has not been devised whereby the rejected blood of slaughtered animals might be brought into more general use as food for man. From one-fifth to one-fourth part of the nutrient matter of all animals slaughtered for the purposes of food is now actually thrown away in the form of blood, and becomes a source of pestilential development. According to Pareire, blood is about equal in nutritive value to flesh, with which it is almost identical in chemical composition. It is a constituent to a limited extent of the flesh of animals, and by many is partaken of in this way, or when having escaped from the cut in serving, with particular relish. In some parts of Europe, the blood of the pig is mixed with fat and aromatics, pressed into the prepared intestines, and sold in shops under the name of "black pudding."

Does this waste of valuable nutriment arise entirely through prejudice? What other reason can be given for refusing to use as food that blood which just at the moment of death chanced to be flowing in the larger blood-vessels, while most of that in the smaller vessels throughout the flesh is eaten? If some such means were now employed to re-

move *all* the blood from the flesh, as was by the Jews, it appears, under the requirements of the Mosaic law,—such as first placing the flesh in water for half an hour, then for an hour in salt, and finally washing it thoroughly with water*—it might be supposed that the law of the Old Testament still exerted an influence in this way.

If some process could be devised whereby the whole of the blood could be converted into palatable and wholesome food, the disposal of the refuse of slaughter-houses—about which there is so much discussion—would be considerably simplified.

DISPOSAL OF STREET REFUSE.

On the disposal of refuse in this city complaints have recently appeared in the *Toronto Globe*, and certainly not without just cause. It is not easy to conceive of anything more disagreeable and unwholesome than to have deposited in the vicinity of one's dwelling—under one's nose—the filth of the streets and lanes, and apparently more plausible and just grounds of actions for damages against the city are thereby created than some of those upon which actions for damages are sometimes based. When the price of manure is taken into consideration, one would suppose such refuse would be worth more to the farmers and gardeners in the immediate vicinity of the city than the price of carting it onto the farms and gardens. Whether it would be or no, there is no doubt that the cost in health and life of having it deposited in proximity to dwellings will far exceed the cost in dollars and cents of having it removed a safe distance from inhabited localities. But the point to which we wish to draw attention is that relating to the improvement (?) of property by filling cavities upon it with this garbage. This is evidently the view of those who own the property. But we had hoped the time had arrived when the depositing of such

* Alien, in *Modern Judaism*.

matter upon land would not only not enhance the value of the latter in the eyes of an enlightened people, but on the contrary, would be regarded as a very serious damage to it for a very long time to come. Nor do we believe that the mixture of any amount of earth with such garbage would ever render it entirely innocuous or unobjectionable as a site for dwellings. Perhaps it is supposed such improved (?) property would answer for tenement houses. But where is the man who would be willing to have a dwelling-house built upon such filth,—however much it might be disinfected with earth—for himself and his family to live in;—to have his bed made, to lay himself down to sleep, over such corruption? “In towns,” says Dr. George Wilson, in his “Hand-book of Hygiene,” “a great evil sometimes arises from building on rubbish containing vegetable matter which has been used to fill up excavations.” Mr. Crosby reports that a high rate of mortality in the town of Leicester during the autumnal months, was chiefly due to annual visitations of infantile diarrhoea which prevailed in parts of the town built on such refuse; and distinctly attributes the disease to this cause. The evidence of Drs. Parkes and Sanderson points clearly to the conclusion that soil of this sort is objectionable.

DANGER AND DEATH IN THE MILK CAN.

Milk is almost as universally used as water. Almost every family is supplied with a greater or less quantity of this fluid. In cities and towns, especially during the winter season, the cows which furnish the milk supply are frequently kept in filthy, badly ventilated stables, deprived of sunlight, and often improperly fed. Under such circumstances it is utterly impossible for the animals to be in a healthy state, and equally impossible for them to yield milk fit for human consumption.

It is well known that diseased conditions of the female supplying the milk has a marked effect upon the quality of

this fluid. Tubercular consumption, for example, greatly increases the proportion of calcium phosphates in it—even to seven times the usual quantity. Milk from diseased cows is sometimes characterized by a want of homogeneousness and by imperfect liquidity, and also by its manifesting under the microscope certain globules not found in healthy milk.

From a dietetical or a sanitary point of view, this subject is of very *grave* importance indeed.

Pure cows milk is of a full white color, perfectly opaque, not viscid, but quite liquid and homogeneous; it is free from any peculiar taste or smell, is without deposit or sediment on standing, and is neither acid nor alkaline; it should yield from 6 to 12 per cent. of cream by volume, and have a specific gravity of *at least* 1.028;—if it falls to 1.026, it shows either that the milk is very poor or that water has been added.

Dr Letheby gives the following table as indicating approximately the proportion of water-adulteration according to the specific gravity and percentage of cream:—

	Specific gravity.	Percentage volume of cream.	Specific gravity when skimmed.
GENUINE MILK.....	1030	12.0	1032
Do with 10 % water.	1027	10.5	1029
Do “ 20 “	1024	8.5	1026
Do “ 30 “	1021	6.0	1023

When the milk is largely diluted with water, other substances, as chalk, turmeric, salt, &c., are frequently added to improve the appearance and flavor.

The use of a tall, graduated glass vessel to determine the percentage of cream, and of a lactometer to ascertain the specific gravity, will usually enable any one to form a reliable opinion as to whether the milk is or is not genuine. While the manner in which the cows are kept—as regards their housing and the nature of their food, together with the use of a microscope of sufficient power, will indicate the degree of its exemption from the effects of disease.

That specific disease is sometimes spread through the agency of milk, can scarcely be doubted. In the *London Lancet* (1870) an outbreak of scarlet fever is noticed, which

occurred in St. Andrews, in which it was conclusively shown that the contagion was distributed either by the milk carrier, or, more probably, by means of the diseased cuticle from the women and children, who vended the milk, actually passing into it, and being with it introduced into the system. An outbreak of typhoid fever is also recorded in the *Lancet* in the same year, which was attributed, by Dr. Ballard, to the washing of the milk-cans with water obtained from a tank which communicated, through an old drain, with the pipe of a water closet. It was not ascertained that the milk was adulterated with the same water, but such may appear probable. In the *British Medical Journal* (1870) an account is given of an outbreak of typhoid fever in which the specific poison was introduced into several families through the agency of contaminated milk. More recently, (1873), Dr. Ballard, Health Inspector to the Government Board, gives the history of a similar outbreak in the village of Armlly, in which there was no room to doubt that the fever was propagated through the agency of milk. The origin of outbreaks of epidemics of enteric fever at Brighthouse and Wolverhampton, have been traced to the milk supply. At the latter place, the water supply of the farm furnishing the milk was obtained from a sewage poisoned well. In the *Canada Lancet* mention is made of a somewhat severe epidemic of typhoid which last year made its appearance in London, England, in parts usually exempt from the disease, such as Grosvenor and Cavendish Squares, Hyde Park Garden, and St. John's Wood. Between forty and fifty families were attacked, including those of many eminent medical men. The majority of cases occurred among nursery children, who partook of milk from a certain dairy,—forty of the families being supplied by this same dairy. Dr. Murchison suspected the milk supply, and upon close investigation the cause was traceable to that and to that alone. The water used in cleansing the milk-cans was highly offensive. Possibly some of it found its way more directly into the milk.

Many similar cases might be mentioned, but the above suffice to show the great importance of having the milk of

towns and cities carefully and thoroughly inspected, from its source to its distribution, and the condition of the cows supplying it, and their management, sharply looked after.

THE PNEUMATIC SEWAGE SYSTEM.

Few questions have proved to be more difficult of satisfactory solution than that of the best method for the removal of sewage from large towns. The water-carriage system was thought to be the most complete that could possibly be adopted, but the escape of deadly gases from the drains into our houses and streets has ever been a source of grievous anxiety and a fruitful cause of disease and death. No problem, perhaps, has given greater perplexity to modern mechanics than that of discovering some efficacious means of preventing the escape of these poisonous effluvia, and the ingenuity of inventive genius has been almost exhausted in vain attempts to produce traps and valves to completely intercept them.

A new system—the PNEUMATIC, proposed by Captain Charles T. Liernur, Military and Civil Engineer, who has had practice in engineering on both sides the Atlantic—is being brought into use in Holland and Austria, and it appears is likely to work very satisfactorily. The pneumatic system “proposes to draw off fecal matters and the polluted air by pipes connecting with steam-worked air pumps. These pumps are attached to air-tight reservoirs beneath ground, in which, by exhaustion about three-fourths vacuum is constantly maintained. From these large tanks, pipes are laid along the principal streets, and at intervals smaller street tanks are placed, communicating by small, short conduits (or pipes, with a sort of valve in each,) with the closets in each house. By partial exhaustion of the air in each of these receptacles for the sewer gas and effete matter, without the aid of water to flush the closets, the gas is drawn off from the house pipes and lodged in the main reservoirs, where it is finally disposed of without detriment to

the public health." By the use of stop-cocks, this process is also effective in removing the excreta deposited in the house drains. No water is required for flushing the pipes, and it is said by the use of one-fourth of the water now commonly employed, the pneumatic system will do the entire work, and in a much more perfect manner than is possible with the water carriage system alone.

The city of the Hague, "after having submitted Captain Liernur's plan to a committee of professional inquiry, resolved at once to give it a fair, practical trial at the public expense." Here, every night a steam engine comes to the reservoirs, a vacuum is created in each by an air pump, and the contents of the house pipes are shot into the reservoirs. When a reservoir has relieved all the houses connected with it, its own contents, solid, liquid and gaseous, are pumped by steam into a tender attached to the engine. As fast as these tenders are filled, they are forwarded to the railroad, and their contents are discharged into air-tight casks for transportation to the farmers. Thus, every night the entire city is relieved of its excreta, without disturbance of, or annoyance to, the inhabitants.

The pneumatic system was tested at the Vienna exhibition last year—being attached to a part of the exhibition building, and was found to act satisfactorily. It was there inspected by the Emperor William, who manifested his appreciation of the great value of the process by bestowing upon its inventor the order of knighthood. It has been endorsed it appears by the International Medical Congress of Vienna, who are convinced, from experiments made in their presence, that "the entire system is capable of doing its work completely." In Amsterdam and Leyden it has been practically applied to the districts of the poorer classes, whose ranks had been yearly decimated by the poisonous sewer gases incident to the water-carriage system. It has also been introduced most successfully into the government buildings at Prague, while it has been applied to districts in that city, by a private company, upon the sole condition that the company shall have the sewage matter.

One great advantage which this system appears to possess is that of absolute independence of the care (?) of householders and servants; doing its work in spite of negligence or interference. If the system proves to be as perfect as its advocates claim that it is, it certainly ought soon every where to take the place of the water-carriage system.

AN UNUSUAL DISEASE.—A large number of cases of unusual sickness are reported as having occurred at and near four villages situated on the banks of the river Raisin, Mich. Generally, before the attack, the patients complained for about twenty-four hours of being tired and lame, of pain in the back of the head and down the spine. It usually began with a cold stage or chill. A few of the patients were attacked as suddenly as if knocked down. Vomiting was a prominent symptom before and after the cold stage. About one half of the patients were rational during the course of the disease, while some had violent delirium from the commencement. There was great tenderness of the body, especially over the deep nerves given off from the spinal column. In many cases the head was thrown back, sometimes to one side. The eyes in some cases were effected with squint, and the pupils were usually dilated, with loss of power to wink. In many cases copper-colored spots appeared on the body. Out of 77 cases 25 proved fatal, and eleven of these died on or before the fourth day of the disease. The water of the river Raisin is quite turbid, and an odor arises from it as it pours over mill-dams at the villages. One of the villages is on the site of an old Indian burying-ground, and the best water to be obtained was contaminated with the results of animal decomposition, and, as is suggested, might properly be labelled grave-yard juice.

THE AUTHORITIES of the city of Vienna have decided to establish in the cemetery the necessary apparatus for cremation, for the use of those who prefer this method of disposing of the bodies of their deceased friends.

MONTREAL SANITARY ASSOCIATION—The object of the Sanitary Association of Montreal, referred to in the September number of the **SANITARY JOURNAL**, as given in circulars issued by the Association, is as follows :

“The study and enforcement of public and private Hygiene, a science the end of which is not only to preserve our citizens from epidemic, indemic, contagious and other diseases which afflict humanity, but also the conservation and development of the physical, intellectual, social and moral faculties of man in his private as well as in his collective life.

To obtain this great and desirable object the association proposes to take into consideration the following subjects : Civic Cleanliness, Food, Drinks of every description, Sanitary Architecture, Epidemics, Vital Statistics. And in fine everything relative to the preservation of mind and body.”

Provisional Committee—A. H. David, M.D., G. W. Weaver, C. O. Perrault, Robert Thompson, M.D., Edward Stark, N. Robillard, M.D.

BOOK NOTICES.

PUBLIC HEALTH—Hamilton, Ont., Oct. 22nd, 1874.—The Report of Dr. C. O'Reilly, Physician Board of Health. Hamilton, shows marked decrease in the mortality of that city for the quarter ending Sept. 30th, 1874 ; or 74 less deaths, than in the corresponding quarter of 1873 : Deaths in July, August and September, 1873, 254 ; deaths in the same months of 1874, 180.

The work of removing the accumulations of refuse matter from the streets, alleys and private yards, had been hastened, it is stated, as much as possible, under the direction of the officers of the Board of Health. No cases of small-pox reported in the city, nor has any case been under treatment in the small-pox hospital during the four preceding months. Only four cases of typhoid fever were then under treatment in the City Hospital, three of the number being non-residents of Hamilton, and ailing at the time of their arrival in the city. The want of extended sewer accommodation is said to be much felt in different parts of the city.

ELECTROLYSIS in the Treatment of Stricture of the Urethra. By Robert Newman, M. D. Reprint from the Transactions of the Medical Society of the State of New York, for 1874, p.p. 30, paper. Albany : Charles Van Benthuysen & Sons.

This is a valuable and interesting contribution on the above subject. The author appears to have had an extensive practice in the treatment of such diseases, and gives notes of numerous cases. The treatment appears to have been remarkably successful in his hands, and the *modus operandi* of it is given. The book ought to be in the hands of every practicing physician.