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MEDICAL SCIENCE

ISSUED MONTHLY

VIDEO MELIORA PROBOQUE

TORONTO, SEPTEMBER, 1888

CONTENTS

	PAGE	PAGE
ORIGINAL ARTICLES		
President's Annual Address to the Executive Health Officers of Ontario—Delivered at Lindsay, August 14th, 1888.....	321	337
Brief Retrospect of the Progress of Medicine, Curative and Preventative, 1828-1888, or the Review of a Lifetime—By W. C. Goverton, M.D., Member Provincial Board of Health: read at Lindsay.....	323	343-346
How to Prevent Consumption—By J. J. Cassidy, M.D., Toronto.....	330	
EDITORIAL		
The Physician as Naturalist.....	334	
The Lindsay Convention.....	336	
INDEX OF PROGRESS		
MEDICINE.—Secondary Mixed Infection in Typhoid Fever.....	338	338
SURGERY.—Aneurism of the Aorta.....	340	340
NEUROLOGY.—Moral Insanity.....	342	342
BACTERIOLOGY.—The Air of Coal Mines. The Etiology of Phthisis.....	343-346	343-346
REPORTS OF SOCIETIES		
Lindsay Sanitary Convention and Summer Session of the Association of Executive Health Officers.....	347	347
GENERAL NOTES	352	352

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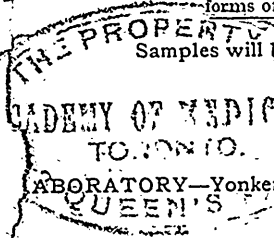
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MEDICAL SCIENCE

VIDEO MELIORA PROBOQUE

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ISSUED MONTHLY
VOL. 1: No. 11

TORONTO, SEPTEMBER, 1888

SUBSCRIPTION, IN ADVANCE
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ORIGINAL ARTICLES.

PRESIDENT'S ANNUAL ADDRESS TO THE EXECUTIVE HEALTH OFFICERS OF ONTARIO.

DELIVERED AT LINDSAY, AUGUST 14TH, 1888.

Ladies and Gentlemen.—I am proud to-day of the part, small though it be, that I have taken in securing a meeting of health officers and scientists, in this town; the more so, as I am satisfied from the presence of so many eminent in this, the department of Public Health, and whose names appear on the programme, that success has been attained.

I have been present at the meetings of the Association since its organization and at the later conventions, and remember none that promised better results in the advancement of general and local interests than the present.

I have enjoyed the generous hospitality of other towns and received much kindness as Lindsay's representative. Fully appreciating this, and well aware of the practical advantages to be gained, I was indeed anxious to, in some slight degree, repay such, and further, that the town to which I owed the privilege of being present at these conventions, should reap a certain advantage as well.

My present position is evidence that you have honored me beyond my deserts; and while my motives in bringing you here are confessedly selfish to local interests and local wants, there is also a desire to advance the aims and objects of our Association and further the interests of preventive medicine.

You will have noticed since your arrival here, evidences of our prosperity. Public and private buildings are going up in every direction, the trowel and hammer making music the whole day long. This is very gratifying, but we wish

more, we wish sanitary progress as well. "*Sana mens in corpore sano*" applies equally in the larger sense and to have a healthy town we must be individually healthy. It is to this end that we rejoice in your presence here. We know that pure water is a prime necessity, and good drainage as well. We desire pure air, wholesome food, healthy homes, freedom from dangerous epidemics, less suffering, and fewer deaths; and knowing full well that improvement in each is possible and necessary, we are prepared to act so as to derive benefit by your councils.

I will not trouble you with a lengthy paper, as I am sure the citizens of Lindsay will prefer to have the short time at our disposal more fully taken up by those from a distance, and I feel that on previous occasions I have trespassed largely on your indulgence. There are some subjects, however, that occur to me worthy of notice at this time, and these I may briefly mention for your consideration and discussion.

We know that throughout the neighboring Republic there are manual training schools; between 400 and 500, I believe, in successful operation with some 20,000 pupils, and in Great Britain there are 2,308 science and art schools, and from official returns in that country we learn that after mathematics the largest number of students are studying chemistry, machine construction, physiology, and electricity. We are agreed as to the advantages of such training; we know that to develop and maintain true mental and physical equipoise, muscular exercise of some kind is a necessity—that indeed the one assists and strengthens the other. The experience of such schools demonstrates the fact that students devoting as many as three hours each day to manual labor and the remaining

school hours to mental work do become as thoroughly proficient in purely mental branches as those in schools where no such choice is given, and while manual labor would be a great advance, the introduction of classes of instruction in the useful arts and sciences would in equal degree be another. I have for years held the view that our system of education is too conservative. We are educating too much in one direction, glutting the market, as it were, with the one sample and quality beyond the demands and the necessities of a new country. The evil is noticeable in the over-crowding of the professions and the robbing of the artizan's bench, the farm and the factory, and that too, at a sacrifice of health and true physical development from the teacher's desk to the judge's chair. The same story is everywhere being told and only those who have ample physical resources to call upon on entering the race, retain it in any great degree, while incalculable harm is done thousands whose muscular and nervous systems are not equal to the severe strain. This should not be; the products of our schools should be fully developed men and women, able and willing to work with hands as well as head, producers as well as consumers, men who by occupation and training shall develop the manufacturing and producing trades, men who will employ labor and successfully compete with the skilled artizan of other lands, men and women, too, educated in the useful and decorative arts. Leading to this end the kindergarten method of teaching is to be recommended. These classes fail to receive the encouragement they deserve and are not as common in our schools as they should be. The degree of healthy rest and recreation afforded, and amount of practical knowledge received by the very young in this method of instruction, is beyond the comprehension of those who have not witnessed results.

I do not regard with great favor the system of isolation and placarding in infectious diseases as at present insisted upon, and would say that in my experience orthodox measures have not proved satisfactory. To make isolation perfect we should provide means for separation and removal of those first attacked. There should be homes or hospitals where a parent or nurse could take care of the sick entirely away from other members of the family, it should not be requisite to placard the dwelling-house during a long course of sickness, and pre-

vent the wage earners from pursuing their occupations. This is a great hardship and a great wrong, especially to people of limited means, who are generally the greatest sufferers. It is a tedious wait of days and weeks as one after the other is taken down with the disease, and it is a serious thing to ruthlessly cut off the revenue, and that, too, at a time when extra expense is necessarily incurred. I venture the assertion that the number now placed on the poor list of the various municipalities by this means, demand an outlay far exceeding what would be required to provide comfortable shelter for the sick, and poor people are prevented earning many dollars that should add to the comfort of the afflicted and family as well. Removal would relieve the burden, preserve the self-respect, and independence of the family and oftentimes relieve the public of their care. Notification to the health officer should be insisted upon in all cases, but after that has been done the interest of the afflicted family should be consulted equally with that of the public.

You will remember that at our Toronto meeting in February last, we approached the Government on the subject of establishing a Biological Laboratory. I regret exceedingly to learn that no real advance has been made, although the question may still be under the consideration of the Honorable the Premier and his colleagues. The importance of an institution of this kind as a means of studying the cause, nature and prevention of disease, as a means indeed of original research, cannot be over-estimated, and I trust that at this united meeting the matter will again be pressed by a strongly-worded resolution.

A more perfect and uniform method of collecting and registering vital statistics is being generally felt by scientists. It would be well, I think, to consider the advisability of some action being taken by the Dominion or Ontario Government, as the case may be. I intend, if present at the Milwaukee meeting of the American Public Health Association, to submit the matter for consideration to that body, as well whether the system should not be uniform throughout the civilized world, every Government having its special branch attached to a Government Bureau—in our case, perhaps that of the Department of Internal Revenue. General adoption, uniformity, and reliability, are of first importance to make such statistics of real practical benefit.

In order that our scientists should receive well-merited encouragement, that an individuality may be given to deserving, practical workers in this Canada of ours, that the public should as well benefit in full degree by the able papers presented at this and former conventions, I do think that a number of papers of specially instructive character should be printed in pamphlet form and largely distributed, especially such as apply to our system of public education and every-day life. I will merely mention by way of example, "Brain Stuffing and Forcing," by Dr. Clarke; "Ventilation of schools and a new method of estimating the proportion of carbon di-oxide in air," by Dr. Cassidy; papers by Professor Wright and Vaughan, and others of equal merit. Dr. Cassidy's paper should be read by every teacher; every school inspector should have a copy and should as well be supplied at public expense with a simple cheap contrivance to employ for practical use. An examination should be made of every school at regular intervals not less often than twice yearly and a report forwarded to the Secretary of the Provincial Board of Health or other party. These examinations might also be made on the occasion of Inspectors' visits, and the results tabulated in this report. The importance of pure air to our developing men and women admits of no question, and some proof is necessary that our schools are in this particular, at least in some degree, sanitarily perfect. A committee could make a proper selection of such papers and decide on a proper method of distribution.

Inebriate asylums have become a necessity; the dipsomaniac must be considered next of kin to the lunatic and imbecile, and should be treated similarly; the Government should provide places for the special treatment and restraint of this class of unfortunates. The incarceration of lunatics in our common gaols is a most barbarous and inhuman practice. I am very pleased that this is recognized by our Provincial Executive, and that much-needed increased accommodation has been recently secured. Still it appears to me that as this class appears to increase rapidly the additional institution will soon be filled to its utmost capacity and the grievance commence anew. Would it not be better that the different municipalities should take care of their own, or, as in the case of Boards of Health, two or more unite and have one institution?

The cottage system would thus become a feature in their case, and a system admittedly more preferable than the congregating of large numbers together under one roof. The inspection of milk and systematic vaccination, as recommended by the Provincial Board, should be carried out.

Gentlemen of the Executive Association and Provincial Board of Health, I thank you for your generous assistance in arriving at the preliminaries of this convention, I thank you for your company, and I hope this will be to you a profitable and interesting meeting, and that you may one and all return home, carrying pleasant memories of Lindsay and of Lindsay's hospitality.

**BRIEF RETROSPECT OF THE PROGRESS OF
MEDICINE, CURATIVE AND PREVENTIVE,
1828-1888, OR THE REVIEW
OF A LIFETIME.**

BY C. W. COVERNTON, M.D., MEMBER PROVINCIAL BOARD OF
HEALTH: READ AT LINDSAY.

Mr. Chairman and Gentlemen:—The unexpected visit of my oldest son, Dr. Wm. H. Covernton, who for twenty-one years has been practising our profession in the Argentine Republic, whilst preventing me from fulfilling my promise at the last meeting of our Provincial Board conjointly to represent it with Dr. Macdonald at the convention of the British Medical Association this year held at Glasgow, Scotiand, has afforded me the pleasure of being present at this Sanitary Convention of the 14th, 15th and 16th in your flourishing town of Lindsay, where I apprehend many will be found assembled, who, if not yet in the autumn of life, have yet so far advanced in the journey as to look forward to numerous and pleasant interchanges of records (during this annual gathering) of the progress, professional, general and commercial, of the numerous towns and cities of our rapidly-growing Province of Ontario; for although the card of invitation bears the request that each member of the Association of Executive Health Officers should at an early date signify the subject of the paper he proposes presenting for insertion in the programme, yet I apprehend that whilst bearing in mind that sanitary progress, preventive medicine, and preventive surgery should be remembered as the true *raison d'etre* of the gathering, the maxim "*Jucundum est dissipere in loco,*" is not likely to be forgotten, and in the intervals of relaxation between morning, afternoon, and evening meetings,

the younger members, some of whom may possibly up to the present time, have not had their early visions of the practice of their art proving a royal road to both fame and fortune realized, but on the contrary, so far in their experience have found it to be a hard step-mother rather than an *alma mater*, and at times inclined to doubt the wisdom of their choice of the field for engaging in the battle of life, may make such topics, themes for discussion, more particularly if they should happen to take into consideration the large yearly addition to aspirants for practise from the issue of new-fledged doctors from the numerous medical colleges both in the Dominion of Canada and from every State in the Union. Such doubters, if any present, may be fitly reminded of the lines—

"No pent up Utica confines our powers,
But a boundless continent is ours;"

also of the no longer fabulous land of Cathay of mediæval European conception, but the vast modern China and outlying islands of Tipangu, now known under the name of Japan, that Columbus vainly sought by sailing westward. For restless and adventurous spirits then, "these fresh fields and pastures new" may be sought as affording ample scope for the display of their knowledge both of curative and preventive medicine.

For less mercurial spirits I would counsel patience, perseverance, and study. In the cities they will always find a *clientèle* among the poor, and we have on record the statement of the illustrious Boerhave that he found them his best patients, for they had God for their master; and history tells us that after attaining to a great age, he left, notwithstanding the large portion of his time given to the poor, a very large fortune.

I have also to remind them that they have only to look back a very short time in the past to many places in this Dominion of Canada, that in their knowledge have rapidly progressed from mere hamlets to towns and cities, and the barren, undrained lands—consequently unhealthy—in the surrounding country which have become the abodes of a healthy and vigorous population employed in manufacturing pursuits.

From many of his medical acquaintances who have attained the age ordinarily allotted to man, an experience may be gained similar to that of Sir James Rawlinson, who in his work on engineering, says: "Within the last half century,

draining and town sewerage have ripened into a science. From rude beginnings, insignificant in extent, and often injurious in the first instance, systematic sewerage of towns and draining of lands have become of the first importance, and has thus in many instances more than doubled its value. Town sewerage, with other social regulations, have contributed to prolonging life from five to fifty per cent. as compared with previous rates in the same district. Agues and typhoid fevers are reduced in the frequency of their occurrence. Since 1840 an annual mortality in English towns of 44 in 1,000 had been reduced to 27, an annual mortality of 30 to 20, and even in some places as low as 15." Similar favorable results may *cæteris paribus* be gathered from the Vital Statistics of the Dominion of Canada, and the younger members of our profession may, I think, rest assured that if their lives are spared to enable them, like a few of us, to look back fifty or sixty years, they will have a far greater amount of progress to chronicle than even the wonderful changes that have taken place in our day, a few of which I propose making brief reference to in the present paper.

The transcontinental railway from Halifax to Vancouver is opening up enormous tracts of country that may in less than fifty years become the abode of millions, and making the most ample allowance for the diminished occupation that may possibly be the outcome of the practise of medicine of the future, namely preventive, medicine, which Dr. Benjamin Ward Richardson, and other optimists, consider as destined in a great measure to supplement, if not to supplant, curative medicine; making also due allowance for the large abstraction of professional work from the all-round or general practitioner, by the yearly increasing number of specialists, of fair lady graduates, and of irregular practitioners without number, there will always remain for his share of curative practise a larger domain than has been calculated on by recent pessimist writers, viz., that only immediately surrounding the umbilicus. I would say then, pause before you determine on rushing to countries where you would have to devote a year or more to the acquirement of at least a conversational knowledge of the language of the inhabitants, and then perhaps so far as large professional emoluments are concerned, find it a barren soil from Dan to Beersheba.

The question may arise in the minds of some members present, "What connection have these prefatory remarks with the title of the paper on the programme?" I must therefore remember that although old men may be permitted sometimes to trespass on the patience of their brethren, because in the course of nature they may not have the chance of repeating the boredom at another annual gathering, yet there is a limit to everything, and I will therefore endeavor to strictly limit my remarks to the "Then" and "Now" of the last sixty years, and adding only to the former the three intervening years between 1825 and 1828. In the spring of 1825, then, with my parents and three sisters, the family abode in the neighborhood of London was changed for educational purposes to the ancient cathedral and seaport city of Boulogne-Sur-Mer, France, the location some twenty years previous of the formidable camp and flotilla, destined by Buonaparte for the invasion of England. Our residence was outside the ancient gateways of the ramparts of the upper town. After the stroke of 10 p.m. these gates were closed by the sentinels, and should the unfortunate wayfarer in the hurry to pass through before the last stroke of the bell, have forgotten to keep the centre of the road, he would quickly after the sound of the opening of the upper windows, be deluged by a shower anything but *ambrosial*—the warning voice of "*Garde a vous*" not always heard, or perhaps in a moment of abstraction unheeded. The streets leading to the new town at the foot of the steep hill on which the upper town is situated (one not inappropriately then named the Rue de Pipots) had on each side stone gutters, the channel of the sewerage of Upper Town into the Sione River, debouching into the tidal harbor. At low tides, as a consequence a combination of sewerage and dead-fish odor took place. On my return from the International Congress at Geneva in 1882, I found on re-visiting Boulogne, this primitive state of conveyance of sewerage no longer in existence, replaced by waterworks, under-ground sewers, both in Upper and Lower Town, magnificent *Establissemens des Bains* new docks, and extensive new deep-water harbor, and apparently in every particular due regard to modern ideas of sanitary precautions; but inasmuch as I failed to notice the continuation of closet soil pipe upwards through the roof, or pipes running up the side of the house from the point

where the house-soil pipe emerging from the building enters the main sewer, and carried outside clear of all windows to the roof, and further, the absence of a separate supply of water for closet purposes, the important question occurred to me, whether the primitive state of affairs existing in my schoolboy days, where the oxidation of sewage left to the sun and circumambient air was not attended with less danger to the inhabitants than under-ground sewers improperly ventilated, or in such a way as to be little more than a pretense. In the spring of 1828 I left France to commence the study of Medicine as a pupil for five years, with an Edinburgh graduate practising at Battersea, the birthplace of the celebrated Henry St. John, Viscount Bolingbroke, then only a suburban village of London. The insanitary surroundings at that date of this location on the River Thames were, although at the time little heeded, certainly not favorable for a low death rate, as between it and Nine Elms and Vauxhall there was a large extent of low-lying land overflowed by the river and underdrained, or imperfectly so; as a natural result, low fevers and ailments of a cachexic nature were not uncommon. In 1832 I had the charge of an extemporised cholera hospital there, and I cannot say that the percentage of recoveries was large; on the contrary, a visit from Pallida Mors usually occurred at intervals from the moment of seizure, of a few hours to a few days. The treatment that seemed for a time to hold out hope of recovery was the transfusion of saline solutions into the veins, which for a few hours exercised an almost magical effect in rescuing the patient from a state of complete collapse, and restoring warmth, only, however, to succumb in the second stage of consecutive fever.

Fifty years elapsed before I re-visited in 1882 this early location for study and professional work, and then only for a very brief space of time, sufficient, however, for finding that the under-drained fields where the pigeon matches were held, had been converted into a magnificent park at a cost of three hundred and forty thousand pounds, and this extensive pleasure-ground provided with an artificial sheet of water, a sub-tropical garden of four acres, and on the south side of the park the noted pleasure resort, the Albert Palace. You may imagine that on viewing these wonderful changes my feelings of astonishment were somewhat akin to those of Rip Van Winkle after his long sleep.

I had no opportunity of comparing the death rate of a quinquennial period in this locality from 1826 to 1833, with one from 1877 to 1882, but the saving of human life may, in a slight measure, be approximated from Dr. Farre's death rate in London generally, from 1838 to 1842, and the death rate from 1880 to 1884. From 1838 to 1842 it was 25·27 per 1,000, whilst 1880 to 1884 it was only 21·01 per 1,000.

Chelsea, separated from Battersea only by the bridge across the Thames, I found to be a continuation of Belgravia, the most aristocratic quarter in London now, but seventy years ago from Buckingham Palace to the river an undrained, marshy ground, very similar to Battersea fields. As regards the ultimate disposal of the sewage of London, now polluting the Thames, the inhabitants are much in the same quandary as those of Toronto. The river Thames is the *cloaca maxima* as the bay unfortunately is for Toronto.

Ignorance with the people, generally, however, on the subject of the prevention of disease in 1832 was a state of bliss, as on the questions of hygiene there may be said to have been an almost absolute dearth of works. Whilst in Italy, Rammazini; in Germany, Willich, Friedlander, and Hallé; in France, Tissot, Barbier, Tourtelle, Rostan, and Londé, had given systematic contributions to this essential branch of the medical art, we search in vain in Great Britain for any treatise that places the subject in a light conformable with the importance it possesses. I except, of course, the writings of the great philanthropist Howard, on the then condition of the prisons in Great Britain and on the continent of Europe, and of the lazzarettos in the Mediterranean and Constantinople, and the equally fervid appeals of Sir Gilbert Blaine to the Government of the day on the subject of scurvy in the navy and merchant service, and the never-to-be-forgotten writings of Jenner on vaccination as a protection from small-pox.

The French motto, "*Prevenant mieux que guerir*," would seem sixty years ago to have been regarded only as true by the non-professionals. Practitioners generally, of that day, apparently were indisposed to allow that prevention is worth more than a cure, considering that to them it was worth much less, and that the less hygienic means were attended to the greater the call for the doctor. Dr. Kilgour, of Edinburgh and Dr. Fletcher, the

able lecturer on medical jurisprudence in the extramural school of Medicine in Argyle Square in 1834, are the first writers on the subject in Great Britain that I am acquainted with. In the work of the former, entitled "Lectures on the ordinary agents of Life as applicable to Hygiene, Edinburgh, 1834," are to be found some sensible chapters on the influence of atmosphere, light, and ventilation of rooms.

Three other important points on the practice of our art were at the time but comparatively little known, or (excepting by modern practitioners) in use, and one scarcely ever practised, viz., the two most familiar for throwing light on local organic conditions and as such valuable aids to a correct diagnosis *auscultation* and *percussion*. The third revealing the vital condition of the disease, viz.: the clinical *thermometer* is to be found recommended chiefly in the works of German physicians of that day, but familiar only at the time spoken of to an exceptionally small number of British practitioners, notwithstanding that in the aphorisms of Hippocrates and even in the writings of Harvey, Van Swieten, Boerhave, Currie, and John Hunter, the conditions of the temperature were viewed as furnishing characteristic evidence of fever.

The Westminster Street School of Medicine in the west end of London and the neighboring St. George's Hospital were, after the first three years of pupillage, my tri-weekly resort for the remaining two years of indentures, at the expiration of which time in the autumn of 1882, I repaired to the University of Edinburgh. Before noting a few old-time reminiscences of this famous university, it may not prove uninteresting to you if I very briefly review the status of the different ranks of the profession in England and Wales at that period, and in fact in a measure still prevailing, as also of the existing and generally-spread feeling of antagonism to the exclusiveness of the councils of the different universities in Great Britain where alone degrees in Medicine could by the majority of seekers be obtained, and as a consequence the wide-spread clamour for medical reform. The different branches of practice were then separated by broad and distinct lines both in public institutions and in the private walks of life—the physician, the surgeon, the apothecary, or general practitioner interfering very little, or scarcely at all, with each other. The last, indeed, if qualified by membership of the

Apothecaries' Company, was not only fitted by the prescribed course and nature of his professional education to supersede the attendance of a physician, who would only be called in consultation in presumed cases of grave danger, but by act of Parliament of 1815 as a member of this highly favored institution, alone possessed the privilege of a legal claim to remuneration in the courts. The honorarium of the physician or pure surgeon of one or two guineas for consultation at his residence, or three or more for visits at patient's residence according to eminence of consultant, although universally recognized and rarely disputed, could not in the courts be collected under like circumstances. In cases of difficulty or danger in surgery, calling for the major operations, would the pure surgeon be called in, the general practitioner, as a rule, being not only a licentiate of the Apothecaries' Company but also a member of the Royal College of Surgeons. At this period even in the public hospitals the attending surgeons ventured but little into the walk of Medicine, this being left to the house, or attending physician. In modern times it has been more wisely considered that there is so natural and inseparable a connection between medicine and surgery that perfection can never be obtained in one, to the total exclusion of the other.

Besides the exclusive protection by law of the members of the Apothecaries' Company, other grievances were prominently brought forward in the medical journals of that day, London *Lancet* in particular, and also at public meetings of members of the profession. One great one, the difficulty then, and even now existing, for men who had for many years been in practice and were desirous of obtaining the degree of M.D., of doing so without going through a second time a long and expensive course. At that time neither at Oxford, Cambridge, nor St. Andrew's, did schools of Medicine exist. The deans of faculty in Medicine at these several universities were the only representatives of medicine and surgery. To obtain the degree of Medicine in Edinburgh, four years' residence and attention was required, the time spent at the London hospitals and schools not being recognized. In 1832, at the University of Edinburgh there were in reality only two professors of great eminence, namely, Drs. Alison and Traile while in the extramural or private schools in that city were to be found in surgery, Liston, Syme, John Lizars,

Ferguson, Robertson, Handeysides; and in Medicine and other branches, Mackintosh, Burns, Hamilton, Gregory, Knox, Alex. Lizars, Read, Kemp, and a number of other men who subsequently obtained great eminence, particularly Simpson, subsequently Sir James, at that time a student, graduating in 1833, and in 1840 appointed to the chair of midwifery. About 1829 or 1830, John Lizars, who was considered a most fearless man, bold to rashness, and the surgeon of the day, revived the operation for removal of diagnosed ovarian cysts, and by the students of my day had acquired the soubriquet of "Ovarian John." I here summarize the results of the six operations performed by him. In one operation, after opening the abdomen, nothing was discovered but flatus in the intestines. Woman died in 48 hours. In another woman affected with curvature of the spine and lumbar abscess, after laying open the abdomen, uterus and ovaries found sound and healthy. Woman escaped with her life. In a third, Mr. Lizars took away a large cyst on left side, but a large one on opposite side, from extent of adhesions, was left untouched; woman survived operation, died three years afterwards. In a fourth case, tumor removed by separation of adhesions. Woman died from mortification. In a fifth case on opening the abdomen, the tumor was found to be so large and completely attached to the surrounding viscera that he was forced to abandon it and stitch up the abdomen. Woman survived the operation. In a sixth case, Mr. Lizars cut away a tumor projecting from the fundus of the uterus. Woman died in a few days from inflammation. Ovaria found sound and in their proper situation. After this signal want of success at the hands of the most dashing and accomplished surgeon of that day, it was little wonder that the operation was pronounced by the profession generally, as unadvisable. More than twenty years, I think, elapsed before Sir Spencer Wells in London, and Dr. Keith in Edinburgh, besides other men whose names do not for the moment occur to me, satisfactorily demonstrated that it was an error on the part of their predecessors to assume from these failures that it was very difficult, if not sometimes impossible, to tell whether there was a tumor or not in the abdomen, or to correctly diagnose its nature, whether one of the uterus, of the ovary, or some other organ, or whether complicated or uncomplicated by adhesions.

In the present day the French proverb, "We have changed all this," may be considered as applicable, and the definition of ancient writers, "*Mulier est propter uterum*," not always to be viewed as a correct one.

In the spring of 1835 the University of St. Andrew's, the oldest in Scotland, dating back, I think, to 1411, in the absence of a teaching faculty, appointed an Examining Board for degree of M.D., from the extramural schools of Edinburgh, regarding certificates of two years' attendance at that university and two additional years, either previous or subsequent, at certain hospitals and schools recognized by the governing body of St. Andrew's. In common with many other four-years' hospital and school men, in addition to their previous three years of pupillage in pharmacy and practice, I availed myself of this first university departure from a rigid and iron-clad rule and obtained there the degree of M.D. in April, 1835, and in August of the same year, the membership of the London College of Surgeons having for examiners Sir Astley Cooper, Sir Anthony Carlisle, Sir Wm. Blizard, Mr. (afterwards Sir Benjamin Brodie), White, Guthrie, Vincent and others, all of whom have many years back passed over to the majority. A few months subsequently I also obtained the license of the Apothecaries' Company, thinking at the time that my field for practice was to be Great Britain, but in consequence of an illness following this year of examinations, perfect rest and change of scene was recommended by my medical attendants, and in the spring of 1836 left England on a visit, purposed at the time to be only of a few months' duration, to friends in Canada. This intended brief sojourn has, however, extended to fifty-two years residence, and has suggested to me that a very brief retrospect of the condition I found the medical profession of Canada then, and of the various stages of advancement in professional education to the present period, would not, perhaps, be considered as void of interest. Briefly, then, I landed in Quebec from an old East Indian teakwood ship, named the Tullock Castle. On the 1st of June, after having been with the captain and first officer the only occupants for a very large cabin that I had no doubt of many previous years had been the scene of flirtations and carousals among passengers bound for India, whilst we had found it a scene of discomfort and disagreeableness

for nine long weeks; for example a mutiny of the sailors at the commencement of a violent storm in mid-Atlantic, and subsequent detention in fields of thick-ribbed ice, abounding in lofty bergs which at a distance assumed all sorts of fantastic shapes, for a fortnight, some days making a little progress and then hemmed in again, the cold blasts from which were enough to freeze you when on deck to the very marrow. On escaping at last, a comparatively short time elapsed before we were at anchor on the 1st of June, near the Citadel of Quebec, under a tropical sun, fortunately having at the Quarantine station at Grosse Isle, no detention to record, as I was able to report to Dr. Douglas the death of only two infants during this long passage, and an entire freedom of the emigrants on board from infectious diseases. I passed in this ancient city as a guest of Mr. Henry Atkinson, of Spencer Wood, to whom I had letters of introduction; I spent two very delightful days in visiting the very numerous objects of interest there to be found Chief among the English medical practitioners of the city, a graduate of Edinburgh, was Dr. Sewell. I had no opportunity of forming the acquaintance of the French practitioners whose *alma mater*, I presume, had been the University of Laval. I travelled from Quebec to Montreal by one of the very fine passenger steamers, even at that remote period running daily between these two cities. One of them in particular, the John Bull in size and furnishing, not suffering very much by comparison with the Hudson River boats of the present day. After a few days agreeably spent in the city where I met my old Edinburgh College mate, the late Dr. David, I made my way on to Cornwall, where I spent a week with the family of the then Rector, the Rev. Mr. Archibald, and while there was introduced to Captain Philpott, of the Royal Engineers, who in conjunction with Colonel By, was employed by the British Government in the great undertaking of constructing the Rideau Canal; by the former I was offered the position of surgeon of the works, but then contemplating a speedy return to England, declined with thanks, very probably the mistake of a lifetime. There also I formed the acquaintance of Dr. Roderick Macdonald, only two years deceased, and of Sanfield Macdonald, then a law student in the office of Mr. Maclean, subsequently Judge Maclean. From Cornwall I journeyed on to Kingston, over such roads that might

fitly recall the couplet applied to somewhat similar ones—judging from the report of the settlers in the Highlands of Scotland a century previous. "Oh if you had seen these roads before they were made, You would hold up your hands and bless General Wade."

The vehicles, not much less cumbersome than the old French diligences, the drivers not remarkable like the French postillions for the quaintness of their costume, but to a recently-imported Englishman, for their strange vocabulary well described by Haliburton in the "Sam Slick" paper. The remaining portion of the journey by lake steamers, which certainly had the merit of being larger and better appointed than those at that time running between the port of London and Calais, or Dover and Boulogne. The city of Kingston at that time was a rival of Toronto, and had, I think, a larger population, including two regiments of the line, a company of engineers and a battery of artillery; there was also in harbor a small gun-boat, named, if my memory serves me, the "Bull Frog," and commanded by a Lieutenant Clarke; the presence of the troops contributing to make the city a pleasant residence for young people; Dr. Sampson, an ex-army surgeon, being the chief practitioner. The Royal College of Surgeons was not then in existence, but was established by royal charter, I think, somewhere about the year 1845. From Kingston to Toronto the journey by steamboat, was then, as it is now, in ordinarily fine weather, a pleasant one, and the line of boats on the route not so very much inferior to those at present running. A short time before my visit the very suggestive name of Muddy Little York had been exchanged for the more euphonious Indian name, Toronto. The city, like Kingston, I found enlivened by the presence of troops at the old Fort. The doctors, even then, were more in proportion than the number of residents. No medical school then existed, but for licensing aspirants to practice, an Examining Board had been constituted, composed at the time, of Drs. Widmer, Diehl, King, Gwynne, and Rolph, my venerable friend, Dr. Workman, subsequently added. Somewhere in 1845 temporary accommodation was found for the Medical Faculty of King's College in the park, the first in the Province of Ontario, Rolph School of Medicine following some years subsequently, as also Faculty in Medicine of Trinity College in 1853. In the cities of Upper and Lower Canada of that

day were to be found able practitioners, chiefly hailing from medical colleges and schools in Great Britain; the first graduates of McGill University, if I mistake not, dating only from 1834. Some ten years previous there had been in existence a school of Medicine in the city at which some very eminent men were instructors; chief among them, Drs. Stevenson, Holmes, Caldwell, and Robertson. Whether Laval University had a Medical Faculty at that date I do not now remember. In addition to British graduates, members of London, Dublin, and Edinburgh Colleges of Surgeons, and Apothecaries' Hall, there were then practicing licentiates of Toronto Examining Board; a good many American graduates were also to be found scattered through the Provinces, and of unlicensed practitioners and quacks, pure and simple, an unlimited number. The practice of Medicine, as followed by these pretenders to medical science, was remarkable for its simplicity, viz.: calomel and bleeding, the latter *pleno rivo*, and frequently repeated. Want of success in treating their patients was frequently attributed to their not having survived long enough for a sufficient administration of the former. The indiscriminate venesection then in vogue was undoubtedly open to question: whether its complete abandonment in recent years has been judicious, is, I think, fairly a matter for doubt. Profuse sweating by vapor baths in which hemlock had been steeped, and other powerful derivants, now also in great favor by so-called "herb doctors," were largely patronized by the credulous and ignorant, who had frequently exhibited to them drugs more potent than catnip tea—hellebore and aconite, to wit. A good many years subsequently, as most of my medical brethren present will remember, the homeopaths and eclectics obtained from the Government of the day the power of appointing a Board of Examiners in their respective creeds, without possessing schools for the teaching of their dogmas, and as from these various licensing bodies a most dangerous laxity in the examination of the numerous candidates for legal qualification for practice ensued, the universities and colleges, with a disinterestedness that cannot by the general public be too highly commended, voluntarily surrendered the license to practice that previously their degree had conferred, and the Ontario Medical Council with exclusive examining powers for practice was established very greatly to the advantage

of the community and to the elevation of the standard of professional acquirements.

A few words in conclusion with regard to the rise of prevention of disease: of its subsequent progress through the instrumentality of Provincial and Local Boards of Health, several of the gentlemen present who have prepared papers on the subject will inform you. First, with regard to vaccination and re-vaccination, a practice which has effectually subdued in every country where it has been thoroughly introduced, one of the most frightful scourges of the human race. We know now only by tradition the ravages of small-pox, as it existed in the time of Lady Mary Wortly Montagu, who first introduced from Constantinople and the East generally, the practice of inoculation with the virus of small-pox, as a palliative of the disease taken naturally, and it would again infallibly exist were the barriers of vaccination from the cow, and re-vaccination at least every seven years abandoned. Hardly inferior to this scourge at that period was scurvy, at sea principally, but also in some cases on land. The sufferings and destruction produced by this horrid disorder on board of our ships in the navy and mercantile marine after a few months' voyage would seem at this date almost incredible. Deaths were then recorded amounting to eight or ten a day in a moderate ship's company, bodies sewn up in hammocks washing about the decks for want of strength and spirits on the part of the miserable survivors to cast them overboard, and through every form of loathsome and excruciating misery of which the human frame is susceptible. Mr. Johnson, in the year of 1778, described a sea life in the following terms: "As to the sailor when you look down from the quarter-deck to the space below, you see the utmost extremity of human suffering, such crowding, such filth, such stench. A ship is a prison with a chance of being drowned, it is worse, worse in every respect—worse room, worse air, worse food, worse company." Dr. Smollett also gives a lively picture of a sea-faring life. At the present time scurvy is completely eradicated from the navy and mercantile marine. Mainly to the persistent representations of Sir Gilbert Blane in 1795 there was a systematic introduction of an abundant supply of fresh meat, vegetables, and exhibition of lemon or lime juice three times a day, established. In conjunction with this, due attention to cleanliness, ventilation, and dryness in interior

economy of the ship, very moderate use of spirituous liquors, if allowed at all, and the proper following up of isolation hospitals on deck for infectious diseases, should they occur.

I am sensible, gentlemen, that with the numerous papers to be read during the three-days' session of this convention that I am trespassing too long on your time, I therefore bring these desultory reminiscences to a conclusion, with the expression of thankfulness that I have lived long enough to have witnessed the universal awakening of the people to the important subject of Hygiene, and to the hearty co-operation of the Government, Provincial and Federal, in carrying out all measures of sanitary reform.

HOW TO PREVENT CONSUMPTION.

BY I. J. CASSIDY, M.D., TORONTO, A PAPER READ ON AUG. 15TH BEFORE THE LINDSAY MEETING OF THE ASSOCIATION OF EXECUTIVE HEALTH OFFICERS OF ONTARIO.

THE annual mortuary returns of the Registrar General of Ontario show that consumption continues to be the principal cause of death among the population of this Province. Thus in 1877, while the total number of deaths from specified causes was 19,260, the deaths from consumption were 2,157, or 11.2 per cent. From 1877 up to 1886, when the last returns were made, consumption heads the list of causes of death in Ontario. In 1886 the whole number of deaths from specified causes was 22,371, and the deaths from consumption were 2,419 or 10.8 per cent. of the whole.

The mortality from consumption in Ontario is not, however, greater than in other countries, as the following extracts show:

England, 1 in every 5.5 deaths was from consumption.				
Ireland, " " 8.4 " " " "				
Massachusetts, " 6.4 " " " "				
Connecticut, " 8.0 " " " "				
Minnesota, " 10.8 " " " "				
Rhode Island, " 7.0 " " " "				
Ontario, " 9.5 " " " "				

As consumption is therefore proved to be the most important factor of mortality in all civilized countries, the consideration of any means of preventing it must be of the first importance.

Before drawing your attention to that portion of my subject, I shall mention certain causes or influences, which are said to predispose to consumption. In Wood's edition of Parkes' Practical Hygiene, published in 1884, the author writes about the lessened death-rate from consumption at Gibraltar as

follows :—"During late years much has been done in Gibraltar to give the men more breathing space and ventilation, hence the decline in consumption, which was so fatal formerly when the men were crowded in casemates. When their barracks are still further improved, we shall see a still further lessening of consumption."

Writing of another factor in the production of consumption, the same author says : "In some way, which is not clear, a moist soil produces an unfavorable effect on the lungs ; at least in a number of English towns, which have been sewered, and in which the ground has been rendered much drier, Buchanan has shown that there has been a diminution in the number of deaths from phthisis. Dr. Bowditch, of Boston, U.S., and Dr. Middleton, of Salisbury, noticed the same fact some years ago. Buchanan's evidence is very strong as to the fact of the connection, but the nature of the link between the two conditions of drying of soil and lessening of certain pulmonary diseases is unknown. It is curious how counter the observation runs to the old and erroneous view, that in malarious, and therefore wet places, there is less phthisis."

As an evidence of how several causes may predispose to consumption, even in favored localities, the following extract from Parkes is suggestive :—"Although in the Alps, phthisis is arrested in strangers in many places, the Swiss women, on the lower heights, suffer greatly from it. The cause is a social one. The women employed in making embroidery congregate all day in small, ill-ventilated, low rooms, where they are often obliged to be in a constrained position. Their food is poor in quality. Scrofula is very common. The men, who live an open air life, are exempt ; therefore, in the very place where strangers are getting well of phthisis, the natives die from it. Another instance, that we must look to local conditions and social habits for the great cause of phthisis. It would even seem possible that, after all, it is not indeed elevation and rarefaction of air, but simply plenty of fresh air and exercise, which are the great agents in the cure of phthisis."

Another extract from the same author is also instructive. He says : "A few years ago much influence was ascribed to food as a cause of phthisis. The occurrence of a sort of dyspepsia, as a forerunner, though this does not seem very common, and the great effect of the treatment by cod liver oil,

seemed to show that the fault lay in some peculiar malnutrition which affected the blood and through this the lungs. Probably there is truth in this, but of late years the effects of conditions, which influence immediately the pulmonary circulation and the lungs themselves, have attracted much attention. The effect of want of exercise, no doubt a highly complex cause, acting both on digestion and circulation, and of impure air have been found to be very potent agencies in causing phthisis, and conversely the conditions of prevention and treatment which have seemed most useful, are nutritious food and proportionate great exercise in the free and open air. So important has the last condition proved to be, that it would appear that even considerable exposure to weather is better than keeping phthisical patients in close rooms, provided there be no bronchitis or tendency to pneumonia or pleurisy."

We see, therefore, that up to the time when those words were written, *i.e.*, in 1884, the prevention and treatment of consumption consisted in recommending a nutritious diet into which milk and the albuminous and fatty elements of food entered largely, the use of well ventilated rooms, the avoidance of damp houses and localities, and a large amount of exercise in the open air. Prevention, in the true sense of the term, was not advised because the germs which produce the disease had been discovered only a short time previous, and the most effective plan for destroying these germs was not yet known.

One of the most considerable advances made in the science of Medicine in our day, was the publication by Koch, in 1882, of certain conclusions relating to the origin of pulmonary consumption. These conclusions embraced (1), the demonstration of the presence invariably in tuberculous products of a micro-organism, described as rod-shaped, motionless, of a length double that of its width and not exceeding the diameter of the blood corpuscles ; and (2), the fact that this organism is not found in other than tuberculous morbid products. A third constituent of the discovery was the complete isolation of the organism from all tuberculous matter by a series of cultivations, and the production of the disease in certain animals by inoculation with the organism after the cultivation had been carried through several generations, a large number of inoculations having been with few exceptions suc-

cessful. In this way the causative agency of the organism was demonstrated. Consumption was therefore proved to be an infectious disease, caused by a particular parasitic micro-organism, and thereby communicable. Koch called this parasite the bacillus tuberculosis. Dr. Flint in the last edition of his "Treatise on the Principles and Practice of Medicine," published in 1834, reconciles Koch's doctrine with the views current up to 1882 as to the origin of consumption. He writes as follows: "This discovery which ascribed a local origin to consumption naturally caused many to ask how it could be reconciled with the existence of a hereditary tendency and with the agency of various causes which as experience shows, exert their effects in some way through the constitution. The parasitic doctrine does not disprove facts which render certain the existence of a consumptive predisposition. This predisposition involves certain local conditions on the concurrence of which the development of the disease depends, not less than on the presence of the bacillus tuberculosis. For growth and multiplication the parasite must have suitable soil. The suitable soil consists of the concurrent local conditions on which the development of the disease depends. We know from observation that this predisposition to consumption may be either congenital, inherited or acquired, and that confinement within doors, a damp atmosphere, depressing emotions, etc., cause consumption by bringing on this predisposition, which requires in addition the presence of the specific cause, namely, the bacillus tuberculosis."

Further on he says: "The bacilli of tubercle in most cases of pulmonary phthisis doubtless have gained entrance into the lungs by means of the inspired air. The parasite is contained in the sputa of phthisical patients, and is not destroyed by desiccation. From this source and from the expired breath of those affected with the phthisis, the atmosphere derives it."

Parkes' statement, therefore, that confinement to close, badly ventilated rooms, and a damp atmosphere, are causes of consumption, may be accepted in the sense that they are the two principal concurrent circumstances, which tend to bring on a predisposition to the disease. Flint's statement that the bacilli are communicated to the atmosphere from the expired breath of patients affected with the disease, as well as from their sputa cannot,

in the light of recent discoveries, be any longer considered correct.

I shall now proceed to lay before you the discoveries of Messrs. Cadeat and Mallet, two distinguished scientists of Paris, who have recently proved by experiment the methods by which the seeds of consumption are most readily propagated.

"It is a matter of common observation now a days that a healthy person, co-habiting with a consumptive patient, is in danger of contracting phthisis. It has been very clearly shown that this does not result from the intervention of expired air. We have, in fact, proved long ago that the air expired by animals infected with charbon, glanders or tuberculosis, never contains the germs of these diseases. Now-a-days contamination with phthisis is attributed (1) to the transmission of infectious sputum in impalpable dust which is scattered through the air in the act of sweeping rooms, (2) to the introduction of these sputa into the air passages, which are regarded as the highway by which phthisis enters the body. In order to form an opinion on the degree of receptivity of the air passages for the bacilli tuberculosis, and more particularly to measure the extent of the dangers which result from the inhalation of the dust of dried tuberculous matter, we have instituted a certain number of experiments performed under varied conditions. We have discovered that the air passages are very favorable to the development of tuberculosis when the bacilli, which have penetrated into their interior, are carried there by distilled water or inert liquids. These bacilli, on the contrary, when mixed with dust took root with great difficulty and rarely in the air passages of healthy persons. We have looked for the cause of these differences. In fact, in order to introduce the bacilli tuberculosis, we have (1) caused the inhalation of tuberculous dust held in suspension in the atmosphere, by continual agitation of the air. (2) We have atomized tuberculous liquids in boxes containing rabbits. (3) We have injected tuberculous virus into the trachea. By the first experiment, inhalation of tuberculous dust, out of forty-six animals only twelve developed tuberculosis. By the second experiment, atomization of tuberculous liquids, we have seen tuberculosis develop in all the animals. By the third procedure (injections of tuberculous liquids into the trachea), our animals all became rapidly tuberculous."

We thus perceive that the danger of taking consumption is manifestly great when healthy persons inhabit the same rooms with consumptive patients; because, unless great precautions are taken to remove or destroy the bacilli, they are likely to inhale them from the moist expectoration; and, as these observations show, the chances of taking consumption are much greater when the tuberculous expectoration is present in the air in a finely divided liquid state.

A second inference is, that great precautions in obtaining free ventilation while working, as well as the removal of the diseased expectoration, are necessary in order to protect chamber-maids and others, who are obliged to sweep the rooms of consumptive patients. A third inference is, that the chances of taking the disease are increased by residing, with a consumptive patient, in small, badly ventilated rooms. A fourth inference is, that residence with a consumptive patient in a damp house increases the risk of taking the disease.

If it were possible for all persons to avoid sedentary pursuits, and, while provided with a sufficiency of nourishing food, to live in roomy, well-drained houses, spending a large portion of their time in the free and open air, it is quite certain that consumption would be a very rare disease, instead of being, as it is now, the greatest factor of mortality in civilized life.

But necessity is a hard taskmaster, and many are compelled to earn their bread in the pursuit of callings which expose them to breathe the air of badly ventilated rooms or workshops, to live in damp houses, and, in addition to this, associated for hours together with companions whose expectoration is constantly giving up the special germ of the disease. A desideratum of great importance therefore is the knowledge of the surest method of destroying the bacillus tuberculosis. As the parasite cannot be destroyed by desiccation, it is necessary that the diseased expectoration should be collected in suitable vessels and subsequently dealt with in the most approved manner.

At a meeting of the Society of State Medicine and Professional Hygiene of Paris, France, held in March of this year, Dr. Grancher, in his own name, as well as that of M. de Gennes, communicated the results of their observations on the disinfection of tuberculous sputa as follows:—

"Observations, made with the assistance of Messrs.

De Gennes and Artaud, have satisfied me that air expired by the tuberculous cannot cause consumption in animals which inhale it. Messrs. Strauss and Dubreuilh have confirmed the truth of this observation. But as the expectoration of consumptive patients is the most active method of propagating phthisis, the disinfection of the spitoons used by these patients, is of the very highest importance."

Experience has shown that antiseptic solutions of carbolic acid, potassa, sulphate of copper, chloride of lime, corrosive sublimate, even in poisonous doses, have not given any encouraging results. Corrosive sublimate in one per cent. solution, destroyed the bacillus tuberculosis, but at this strength it is not easily dissolved, and it would be dangerous to place it in the hands of nurses.

We tried hot water. The bacilli resisted a temperature of 140° F.; at 176° they were in almost every instance destroyed; at 194° and 212° the bacilli were in every instance destroyed. Water, heated up to 212° (boiling water), is therefore capable of destroying the virus of tuberculous sputa."

In the discussion which took place after the reading of this paper, Dr. Grancher expressed the opinion that there is little danger of tuberculous infection from eating butcher's meat. It has been demonstrated by M. Nocard, that tubercle is very rarely found in the flesh or juices of animals, which have died of phthisis, unless these have been tuberculous glands. Theoretically the danger exists, practically it does not.

It must also be remembered that the bacilli from tuberculous sputa may be communicated through the medium of water, food, clothing, etc. The milk of cows, which are affected with the pearly disease of cattle, is well-known to contain bacilli and may prove a source of infection. From these data we may draw the following conclusions with regard to the prevention of consumption:—

1. The expectoration of consumptive patients should always be received in suitable vessels and mixed every day with boiling water.

2. Healthy persons, especially children, should not sleep with, or occupy the same sleeping rooms, as consumptive persons.

3. Children should not be subjected to indiscriminate kissing which may serve as a means of introducing the bacillus.

4. Teachers affected with consumption should renounce their profession, and consumptive children should not be permitted to attend school.

5. All the dairies in the municipality should be under the supervision of the medical health officer, who should be empowered to order the slaughtering of tuberculous animals.

6. As it is impossible to avoid inhaling the bacilli owing to the prevalence of consumption and the neglect of precautions to disinfect tuberculous expectoration, persons predisposed to it should endeavor to secure the freest ventilation without draughts, indoors, and also to pass a large portion of their time outdoors.

7. Special legislation should be passed providing

for the proper ventilation of all workshops, factories, school-houses, churches, theatres, court-houses, and all other places of public resort.

8. On account of the greater activity of the bacilli in a damp medium, as well as for other reasons, the effect of a wet subsoil and consequent dampness in houses should be obviated by drainage of the soil.

9. Exercise, preferably in the open air, on account of its good effects on digestion, circulation, and respiration, together with the use of a nutritious diet, are to be recommended.

EDITORIAL

THE PHYSICIAN AS NATURALIST.

ILLUSTRIOUS as have been many of the Presidents of the British Medical Association, few, indeed, have there been of them whose names have, for twenty-five or more years, stood more prominently out, than that of William T. Gairdner, M.D., LL.D., who delivered the presidential address at this year's meeting in Glasgow. In choice terms he referred to the honor done the old city on the Molindar burn in having so illustrious a gathering meet there, and in language touching and eloquent, sketched the growth of what he says we may claim to be, and appear to you, in the words of St. Paul, "Citizens of no mean city." Passing to the special part of his address, the President referred to the "survival among us of an ancient way of thinking that is presented to the mind by the designation, in English, of the physician, or, as Chaucer has it in his well-known Prologue to the *Canterbury Tales*, the *Doctour of Physike*." It is curious, said the speaker, that in English alone has this survival occurred; but it is most remarkable, inasmuch as the title "seems to recall a time when the medical art was distinctively associated in the minds of men with the study of *phusis*, and when the healer of the sick was regarded as in a very special, if not exclusive sense, a *student of Nature*," and thus a *naturalist* or a natural philosopher or physicist.

From time immemorial the tradition has continuously existed that the *healer*, or physician of the highest class ought also to be in a very real sense of the word, a *naturalist*, or perhaps a man of

science: that it is his prerogative to be trained and exercised after the best manner and according to the most thorough discipline of the science of his age.

As Bacon, after Hippocrates, has it, the live physician must be "the servant of Nature." Referring historically to this point, Dr. Gairdner says: "And while a good deal of Galen's commentary is, of course, antiquated, and little instructive for us here, there is a curiously modern look about one part of it, which shows that exactly the same evils which have grown up about the art of Medicine in later times, . . . had already become rife in the second century of the Christian era, long before the remote East had sent us that long array of outlandish drugs, or *physic* (popularly so called). The relation of the fight between 'the servants of Nature' and those who, like Asclepiades, whose *role* was interference with Nature's processes, or as the writer puts it, "shove old dame Nature out of the way, perform the cure *tuto, cito, et jucunde* and claim all the credit."

Regarding the "middle ages" little of the old idea of the physician seems to have existed. Roger Bacon's fate indicated that it was dangerous to personal liberty and comfort to pursue anything like original research unless proceeding along the lines of St. Thomas Aquinas, "the angelic doctor."

Of modern *physic*, Gairdner claims a precedence for the three Scotch Universities in having given to the student for several generations at least, a serious beginning by means of a regular academic curriculum, in which a foundation was laid for "*physic*," in the systematized study of certain de-

partments of natural science. But with such leading doctors as Cullen, Black, and Hope, as professors of chemistry, and physicians in the Scotch colleges as early as 1750, "it could not be but that a great impulse should be given to the idea that a physician was bound to learn something which could be dignified by the name of science." The lecturer continuing, said he wished especially to point out "what is still wanting in the training of the physician." While it may be that the tendency of modern scientific methods is to be hard and ungenial, and to make of suffering man a mere "case" to be watched and observed; yet surely such were much better than to slavishly follow scholastic traditions or mediæval superstitions." A primary difficulty in even the best of medical teaching has arisen from a neglect of previous training in the scientific basis of all technical studies, viz., the laws of matter and the correlation of forces. He says, "I think, that some kind of systematized instruction in physics, and not a merely elementary examination in mechanics, should be an essential part of an education with a view to the medical profession. And when we consider further that most of the great advantages in medical diagnosis in the present day, through the stethoscope, microscope, laryngoscope, . . . electricity, as applied to nerve and muscle, etc., involve applications of pure physics which are neither remote from practice nor yet very easily mastered by the beginner; and that, in the case of electricity and other physical reagents, even heat and cold, etc., we are every day extending the domain of these sciences in therapeutics, *and still more, perhaps, in preventive medicine and sanitary science*, their claim for an extended recognition in teaching seems enormously enhanced. I am persuaded that in a very few years the physical laboratory will become an absolutely essential preliminary step in the education of the physician of the future, and that those who have not undergone this training will be hopelessly distanced in the race." But a difficulty far greater than this last of systematic training of students is "the largely unprepared state in which the minds of most boys and young men are found at the time of their leaving school, as regards the most elementary truths and methods of physical science and of the observations of Nature." So late as 1884, The Technical Commission reported only three schools in Great Bri-

tain in which science is fitly and adequately taught. A return to the House states "that while twelve to sixteen hours a week are devoted to classics, two or three hours are considered ample for science, in a large proportion of the schools." Apropos of this the writer quoted the opinion of an old Scotch-woman of one of her boys at the parish school, "Sin' ever he gaed to the schule, his edication's been stopit a' thegither."

A concluding section is devoted to the relations of the searchers into Nature to religion, and after humorously referring to Chaucer's description of the "Doctour of Physike," and quoting the final lines of the description,

"Wel knew he the old Esculapius,
And Dioscorides and eke Rufus,

"His studie was but little on the Bible."

he says we have, yet even, to deal with this the stigma of materialism as physicians or students of Nature. Referring to such articles as one in a recent number of the *Contemporary Review*, Dr. Gairdner says, "That the active ministry of the *healer*, if fitly and diligently pursued in a serious, and not in a sordid spirit, cannot possibly tend to irreverence, or what I would call essential atheism or godlessness, is, I think, so obvious that it is only wonderful that any doubt should ever have arisen on the subject." To him, seekers after Nature, such as Charles Darwin, approach the divine in spirit, and are men of the very stuff and moral fibre of which the most eminent saints are made. Thereafter in lofty and eloquent language follows loving expressions of regard and reverence for this great seeker after truth. Referring to the mediate position of the physician, the writer says in words with which to conclude the abstract of this splendid address: "Although he can never again become what he was in the early ages, the sole, or the chief representation of physical science; he must always be, and must have become more and more, a man trained in its discipline and familiar with its resources: while on the other hand, his close relations with suffering humanity, and with the awful and solemnizing ministrations of life and death, will serve to keep him in a region apart from that of pure science, and one in which from day to day, the voices of the unseen world (if he will only listen) will be ever sounding close to his ears."

THE LINDSAY CONVENTION.

God's passionless reformers, influences
That purify and heal, and are not seen,
Shall man say whence your virtue is, or how
We make medicinal, the wayside weed?"

—Lowell.

IT must occasionally have occurred to many, at sometime in their hurry through life, with one day after another repeating the echo of the seldom-ceasing mill-wheel of our routine task, to observe what passive agents we are in the hands of what is now technically called *environment*, but which in a popular way we call *influences*. To-day, to-morrow, and so in succession we move along, like some natural force, *i.e.*, in the direction of least resistance; and if asked why, we would oft-times be tried in finding an answer. We see this in the force with which we follow fashion. Let it be some popular opera, some favorite health resort. it is all the same; with an absence of thought that is often amazing, we go as go the rest, and never answer the why. If we were to attempt to be critical and to differentiate, we might be inclined to ascribe to influences, a power somewhat different from fashion, a something comparable to some organic function, by which, as in the hæmatogenic processes, silently but ceaselessly, results are being produced. Life is inseparable from influences, as is matter from gravity, and man is moulded either for good or evil, or degrees of either, simply by the sum total of influences acting upon him, and which he as faithfully reflects. These thoughts have been prompted by the progress of public health work in Canada during the six years which have gone since organization began in the direction of sanitary work, as a fixed idea in Ontario. The nature of the work to be done even by those engaging in it, was but ill-defined, and methods for obtaining results were inchoate in the extreme. In the town of St. Thomas, just six years ago, the first popular meeting or sanitary convention was held, and its most enthusiastic advocate could not have called it a great success. In fact the people were not at all sure what the promoters of the convention were after. But with such methods of propagandism, aided by extending correspondence, and later obtaining definite health legislation, organization on a broad basis became possible. A large proportion of the six hundred municipalities have since 1884 established Local

Boards, and a staff of some three hundred and fifty medical men are attached as officers to these Boards. It is true that the work that they have undertaken to do is often of a perfunctory character, inasmuch as the absence of definite remuneration for services places a bar on their performance of serious work under ordinary circumstances. But if the people have had to become acquainted with the principles of sanitary work, Boards and their officers have similarly had much to learn. But a review of the advances made in six years indicates a progress in general and municipal knowledge and appreciation of public health work little short of wonderful. Executive officers of health have banded together for practical work in an association which has already reached a membership of more than fifty, and has held meetings for discussion of the practical work they have to deal with. Such a meeting was that at Lindsay last week, which was alike a meeting of executive workers and one at which many of the public found interesting and profitable discussions, which they could understand, being carried on. The Association was entertained by the Mayor and corporation, Local Board and citizens, in a manner which did honor alike to the character for hospitality of the people of Lindsay, and to their appreciation of the presence amongst them of a body of gentlemen who, as was well said in the address of welcome, were engaged in work of benevolence all the more meritorious for the self-sacrifice of men whose business it is to cure disease, but who have bound themselves together for purposes of studying measures for preventing it. The silent influences are indeed making

"Medicinal the wayside weed"

for the growing knowledge is making many more followers of the good in health matters, and multiplying on all sides the propagandism of public and private hygiene; while in many ways the gross unseemly waste products of civilization are being utilized until, from the offense and nuisance, we behold their return to mother earth, there again to play their parts in the restitution of things material. We rejoice to know that this is so, that speaking for ourselves, as physicians, we can claim as our heritage the work, elsewhere so eloquently put by Dr. Gairdner, "of searchers after Nature and Truth;" and that as he further puts it "as we learn more widely of Nature's secrets we shall

still further be able to bring them into service for ends not more curative, or perhaps as much, than preventive in all pertaining to disease."

"Not in vain the distance beacons, forward, forward,
let us range,
Let the great world spin forever down the ringing grooves
of change."

COMFORT AND SAFETY IN THEATRES AND PLACES OF PUBLIC RESORT.

AS the season approaches for the re-opening, and we might say re-crowding, of places of public entertainment, it is not inappropriate that this subject, often referred to by a long-suffering, but presumably pleasure-loving public, should be discussed in a journal viewing the question from the special standpoint of the physician. W. E. Roth, Esq., has recently published a work on "Theatre Hygiene," which contains many useful and practical suggestions; referring especially to the study of the best structural and decorative arrangements to be adopted in the construction and fittings of theatres, music halls, etc., the object being the maintenance of the health, comfort, and safety, not only of the public, but of the players and other people employed. One is pleased at the place given by Mr. Roth, in the order of relative importance, to health, and glad to see its importance recognized. The history of theatres must be considered as dating back to the time of the amphitheatres of the classic nations, in which, owing to climate, the difficulties as regards fresh air and ventilation, were reduced to a minimum. But assembly-rooms in northern climates stand in a different category, and as stated by Mr. Roth, although in most civilized countries attempts are made to regulate the plan and construction of such places, yet there is not, even in London, a theatre which, structurally, can be considered perfect, which obeys the prescribed regulations, and which maintains all its appliances and arrangements in thorough working order and repair." While fire-escapes and fire-proof ceilings, stage, galleries, flies, etc., are most important questions to be considered in connection with life, yet it is to the aggregation of people in close spaces that from the health standpoint these structures must be viewed. It is well said, as referred to by Roth, that the most important feature of the construction of a theatre, is as to the arrangements for ventilation. The rule for

seats is that the backs should be at least two feet six inches between the rows, and each person should not have less than one foot eight inches by two feet four inches to himself. This gives barely four square feet of floor space to each person, which, multiplied by the height of the roof, gives the amount of air space for each person, lessened, however, by the amount of impure gases, due to the combustion of gas. Remembering that a person in the fresh air has a change of atmosphere with an ordinary breeze, over 25,000 times in an hour, we can at once appreciate the remark that ventilation of theatres and other public buildings, viz, schools, can only be satisfactorily effected by mechanical means. The difference in attractiveness between stuffy old theatres and those constructed with a view to good ventilation is such that the general public are beginning to select, not only because of the celebrity of some special star performer, but also because of the health conditions of the play-house. Most can so well remember, after a single experience of the foul, stuffy atmosphere of some of our churches, theatres, etc., the headaches, want of appetite, and sore throat, which was the necessary sequence to the pleasure, that they do not readily repeat the experience unless under great encouragement. Alas! that the excuse should seem to have some grounds in the case of the churches, for it were perhaps not a bad way in the case of some theatres to cure the *habitués* of all desire to re-visit them. The fact of great, although perhaps less importance than in the case of schools, is that such are become too frequently the medium for communicating diseases of a contagious character. Remembering that the air-passages, dry, irritated, and congested, after three or more hours in a theatre, are suddenly exposed toward midnight to the chilly, frosty air in this climate, it is no wonder that germs of diseases inhaled in such an air are very likely to inoculate those who have inhaled such. A curious case was several years ago related, as occurring in an eastern Ontario town, where diphtheria had occurred in the family of the caretaker of the town-hall, who lived in the building. The hall was during this time used one evening for a public ball. One of the children died in the ground apartments on this same evening, and some days later two of the young ladies present at the hall took the disease. It might perhaps seem too radical for the State in this country

to adopt the plan of European countries and control all theatres; but it is highly important that more than an incidental supervision and inspection,

both of existing public buildings and of the plans of those constructed in future, should be undertaken by a regularly-appointed and paid official.

INDEX OF PROGRESS

MEDICINE.

Secondary Mixed Infection in Typhoid Fever.

We have read with unusual pleasure a paper with this title in the August number of *The Medical Journal and Surgical Examiner*, as it admirably sets forth from the scientific standpoint of cause, certain clinical phenomena which are unfortunately too frequent adjuncts of Enteric fever. Says the writer, Dr. Holmes, "In this strict sense, typhoid fever is the infection of the typhoid bacillus and its direct consequences. Any symptoms and results which are due to other micro-organisms are not parts of the typhoid disease, and must be looked upon as accidental complications."

The course of the typhoid bacillus is well known. First found in Peyer's patches in great numbers, they gradually spread to the mesenteric glands and after a short time are poured into the thoracic duct, cause a pneumonia so common, an early symptom in the disease. Thence passing into the general circulation they collect in spleen and kidneys, thence into the urine whence they may be cultivated. Sometimes at an earlier stage they may force themselves by the portal circulation into the liver, and may be found in the portal capillaries. "The typhoid bacillus does not produce suppuration, nor completely destroy living tissues, except when in masses large enough to produce large infarctions as in spleen and kidneys. It does produce a toxæmia or sapræmia, and later, a septicæmia which has a tendency to self-limitation." Owing to the various and grave consequences following the disease, the writer says we must conclude that such results are due to secondary invasion with bacteria, which have nothing to do with the disease itself, and any of which may be absent in a typical course of typhoid fever. "Whenever the invasion of the typhoid bacillus takes place, whether in the superficial lymph glands of the intestinal or of the respiratory tract, the inflammation in these glands due to the irritation of the bacillus and its ptomaine so diminishes their resistance that a secondary invasion

with pyogenic and other bacteria is a very easy thing. Many of the pathogenic bacteria are only facultative parasites of man, living for the most part as messmates with him on the contents of his intestines, or as some think, being necessary even to mammalian digestion. When the intestine or any part of it is dead, or the barriers which ages of association have thrown up are torn down by traumatism or otherwise, the before harmless or even helpful bacteria, set up a destructive, saprophytic colonization of the tissues of their host, and in the neighboring living tissues they may produce suppuration, coagulation, necrosis, hæmorrhagic infiltration, lymphatic engorgement, or any of the results which are so frequently demonstrated in the infectious diseases, dependent of course on the peculiar anatomy and physiology of the invading parasite. Of all the bacteria capable of becoming pathogenic, the pus-microbes are the most ubiquitous, and their influence most disastrous to life."

So interesting are the following paragraphs that we quote them in full:—

"It will be well, then, to consider at some length the manner of infection with these parasites, alone, and then, afterward, some of the other kinds of microbial invasion separately.

In addition to the local lesion in the intestine, or larynx, the facility of infection with the pus-microbe is increased by the general condition of the patient brought about by the simple typhoid disease. The nutrition of the tissues is reduced to a minimum, the circulation is impeded directly by numerous capillary emboli, and indirectly by a diminished nutrition of the heart muscles. The poor quality of the blood and the retarded circulation invite the formation of thrombi. The lymphatic circulation is equally impaired. While under ordinary circumstances of health, the lymph apparatus has not only a great power of resistance to bacterial invasion, but also a remarkable power of destroying the invader, a few days of typhoid infection is enough to interfere with this function materially.

The infected and engorged Peyer's gland is very

Soon attacked by passing suppurative bacteria. Ulceration and sloughing follow in proportion to the destruction of tissue by the second infection. At this time, the symptoms begin to show that a new factor has begun to operate. The temperature is less regular in its remissions, and takes on a septic character similar to surgical-wound diseases. The micrococci are carried on into the mesenteric glands, where they may, in favorable cases, be arrested and destroyed. The glands after being enlarged for a long time return to nearly the normal size. The fatty degenerated material is removed, and the residue becomes calcified.

Unfortunately, this happy issue is not always realized. The filtering power of the already overtaxed gland is overcome, and the great lymphatic channel is flooded with the escaping bacteria. They are poured into the venous circulation, and find their way directly into the lungs. Here capillary embolism results a second time, and with the presence of a parasite which is capable of producing a destructive inflammation. This is the pneumonia which Murchison says 'rarely appears before the third or fourth week,' and then 'may terminate in small abscesses, or, rarely, in gangrene' (p. 557). It must not be supposed that the presence of the pus-microbe is the only essential to the formation of destructive inflammation, or that even in tissues the vitality of which is so much reduced by disease as the lungs in the third week of typhoid, they would invariably set up the suppurative process. The investigations of DeBary and Grawitz lead us to think that the resistance of the tissues is a much more important and powerful factor than we had supposed. But not all, if even a small part, of the bacteria are arrested in the capillaries of the lungs. Many of the emboli here are, no doubt, taken up by the pulmonary lymphatics, and carried to the mediastinal glands, to be destroyed. Enlargement of these glands is frequent, and their breaking down into abscesses is occasionally noticed.

Upon the arterial side of the circulation, the resistance of the tissues is, upon the whole, better preserved; but infection of bones, joints, and other serous cavities, and of the large organs of the body does take place. Then all the severe symptoms of osteomyelitis, suppurating synovitis, pericarditis, pleurisy, peritonitis, meningitis, and abscess in the large organs are added to the typhoid history. It

is no wonder that the patient, already reduced by weeks of disease, is unable to resist this unexpected invasion, and very soon succumbs. These complications make up a very considerable bulk of the fatalities from abdominal typhus, though each in itself is rarely met with.

There is a form of infection to which the poor typhoid is exposed which is the most pitiable of all. Either from the presence of the lasting spores of the bacillus, or from infection through the milk and other food, or through the inspired air, tuberculosis is a very frequent sequela of typhoid. All systematic writers notice this frequency, and attribute it to the protracted depression of the disease. Murchison says that it is more common after typhoid than after typhus, and that it is to be feared in all cases when hectic fever and bronchitis persist after the end of the fourth week (p. 558).

The local effects of an invasion with the typhoid bacillus is a non-destructive one, and the tendency is towards complete restoration to a state of health.

The primary lesion in the bowel or in the larynx gives rise to a point of least resistance; and the general impairment of nutrition, renders all those causes which ordinarily determine the localization of infection far more potent.

Pyogenic and other forms of infection do take place through the primary lesion, and result in more than ordinarily serious consequences on account of the diminished resistance of all the tissues of the body.

Therefore all traumatism to the abdomen, either external, through violent, careless, or unnecessary palpation, or internal, through the use of food containing solid particles which might cause abrasion, should be strenuously avoided.

The imminent danger of typhoids to tuberculosis is conceded by all, and every precaution should be taken to prevent infection through contact with phthisical patients or nurses, or through confinement in rooms occupied by them, or through utensils or food which might furnish the infection; and when there is reason to suspect latent tuberculosis, the use of all anti-tubercular measures is recommended.

The treatment of typhoids and phthisical patients in the same hospital ward is little short of criminal, and the employment of tubercular nurses, attendant, or cooks, or ward-servants is incompatible

with the present state of our knowledge of tubercular ætiology.

As typhoids are more than ordinarily susceptible to all contagious diseases, they should be rigorously excluded from direct and indirect contact with diphtheria, erysipelas, and all wound diseases, the most thorough cleanliness should be observed about their person, and the towels, bedding, and utensils should be beyond reproach.

In the care of the lips, the tongue, and the nose, care should be taken that no abrasions be made which might open a way to secondary invasion.

So-called relapses are often due to a secondary mixed infection. Therefore, in all cases of relapse, careful, diligent, and if necessary, repeated search should be made for foci of infection which could give rise to the symptoms of relapse or any anomaly of temperature.

When a localization of infection has been discovered, the fact that the patient is, or has been, suffering from typhoid does not interdict the employment of ordinary surgical principles, but furnishes an additional and imperative indication for speedy operative interference, as furnishing the only known means of preventing the most disastrous issue."

SURGERY.

Aneurism of the Aorta.

The following remarks are based upon notes taken of a case under my observation for nearly one and a half years:—When first seen, the diagnosis was pretty evident, and although a post mortem was not consented to, the sudden termination, the mode of death, and the whole course of events point clearly to aneurism. The patient, a man *æt* 30 years, was rather ill-nourished, pale, and worn looking, and exceedingly nervous; the muscular system soft and flabby and poorly developed, and the skin unhealthy—a large patch of pityriasis versicolor covering the chest and shoulders. He complained of having suffered considerable pain in the chest for nearly two years, with wheezing, shortness of breath, and a dry cough. He fancied, or had been told, his lungs were affected and had taken cod-liver oil for some time. On examining the chest, a pulsating tumor about the size of a large horse-chestnut was visible immediately under the skin to the right of the sternum and in the position of the third costal cartilage, which had been absorbed. I gave him *grs. v.* of calomel and

grs. x. of bicarbonate of sodium to be taken at bedtime, and promised to see him the following day, when I mentioned to him the nature of his disease. As the chief part of the treatment, I advised perfect rest in bed. He rather demurred at this, but agreed to a consultation. Dr. I. H. Cameron saw him with me on the 23rd April. He advised the course of treatment I had proposed, and recommended that he be put on large doses of the iodide of potassium. The prominent symptoms at that time were: The pulsating tumor already referred to; a considerable area of pronounced dullness extending to the subclavicular regions on both sides. The distinctive bruit was quite easily obtained immediately over the tumor in front along the course of the carotids and even heard in the posterior part of the chest. The patient complained of considerable pain, which some months before was intermittent, sharp, and shooting, felt sometimes down the arm and up the side of the head; but now it was a constant aching in the front of the chest. There was marked dyspnoea, especially when he lay on his back, with some hoarseness, probably due to pressure on the left pneumogastric or recurrent laryngeal nerve. He never experienced any dysphagia. There was considerable œdema of the face and neck. The veins of the left side of the face and neck became quite enlarged and prominent, no doubt from pressure on the superior vena cava or left innominate. The radial pulse was weaker on the right side than on the left.

The position of the aneurism and the variety are partly conjecture, but judging from its size, pressure, effects, etc., should say it was situated on the anterior part of the ascending aorta, or commencement of the arch, and that it was the false sacculated variety.

In searching for the cause there seemed to be nothing in the man's history predisposing to it. His age might be regarded as favorable, for statistics show that aneurisms occur most frequently between the ages of 30 and 40 years. He had never had rheumatism or gout, and there were no evidences of his ever having had syphilis or of subsequent mercurial treatment. He had never been a drinker and was now quite temperate and regular in his habits. Amongst the exciting causes, however, he referred back to a runaway accident some two years before, when he was thrown from a buggy and dragged on the

ground by the reins a hundred yards or more. He said he dated the commencement of his failing health from that accident, and thought he had in some way or other injured his lungs. It is probable the aorta had received sufficient strain to set up athromatous change, and by this gradually weakening and destroying a patch of the inner coats of the vessel, the aneurism was gradually developed. Probably another exciting cause, or a cause which tended to its development after the reception of the injury, was the nature of his occupation. It was an exceedingly responsible one, being a despatcher on the G. T. R. He was certainly a very nervous man and very restless and sleepless.

As advised, he went to bed the day after the consultation, and we succeeded in keeping him there until the end of July, a period of 13 weeks. Commenced treatment with 5 gr. doses of iodide of potash, and in a little while increased it to 7 grs., three times a day, but soon the characteristic rash appeared, when I tried increasing the dose to remove the rash, and ordered him 15 gr. doses three times a day. This had the desired effect and this dose was continued for some time. Believing the iodide of potash was doing some good, we increased to 20 gr. doses and kept him on it for nearly two weeks, when we were obliged to desist altogether, as it now induced severe neuralgia of the face. I was never able to give it again, even the smallest dose brought on renewed attacks of neuralgia. One evening at the beginning of the third week, a message was sent for me to go as quickly as possible at it was thought he was dying. I went at once, though expecting to find him dead. He had considerably recovered from what he then described as a sort of momentary unconsciousness, immediately followed by a peculiar feeling in the left side of the head and a numbness down the right side, felt more particularly in the right foot. The feeling in the head and the numbness lasted for several days but gradually wore away altogether. I am inclined to think a small clot had escaped from the tumor and entering the left carotid had become lodged in one of its branches. At any rate, he began to improve immediately afterwards. The external tumor which had previously been quite soft and extensible, so much so that every pulsation of the heart was quite apparent in the tumor several feet from the patient, now became firm and hard and the beat barely recognizable on

close inspection. I am quite satisfied a large clot formed in the tumor, and this gradually contracting in time so far removed the pressure that the patient was relieved from all symptoms brought about by the presence of the tumor, and said he felt as well as he had ever done in his life. Day by day the external tumor was an indication of the amount of shrinkage that was going on. From the size of a large horse-chestnut it continued slowly to recede until barely discernible. After the pain and other distressing symptoms disappeared the patient improved rapidly in health. He was less nervous and slept well. His appetite became so good it was with great difficulty he was kept down to the low diet prescribed. We tried hard to keep him longer in bed, but he was feeling so well and his circumstances beginning to press him somewhat, he was determined to be up and to work again. I am satisfied had he remained in bed six months instead of three, he would still be living. After taking gentle exercise around home for a few days he resumed work again on the 8th August. He was advised to avoid any excitement or violent exercise. During all that autumn and winter he was very careful. I saw him every Saturday evening and examined his chest. The tumor seemed to be at a standstill and he was feeling well. In the spring I left town for three months, and on returning in July found he was not so well; pressure symptoms were returning, the external tumor was a little larger, breathing slightly obstructed, pain felt at times and cough troublesome. Ordered him to bed again but he put it off for a little while, saying they were very busy in the office just then. He kept putting it off from time to time until on the 11th Sept., while at work in the office he dropped over dead, seventeen months from the time we first saw him.

This case appeared to us to contain two or three features of special interest, which, in better hands might have been more clearly explained, but may even now offer subject for thought. These questions suggest themselves:—What was the cause of the aneurism? What happened to the patient at the beginning of the third week? Did the iodide of potash have any remedial effect? Did doubling the dose of this drug remove the rash spoken of? Was the external part of the tumor any indication of what was going on in the large part within? Was a second aneur-

ing developed, or did the old one again enlarge and rupture? Did treatment prolong life any?

W. N.

NEUROLOGY.

Moral Insanity.

We have before us two most interesting papers bearing on this subject, one being the translation by Dr. Joseph Workman, of the report of the meeting of the Italian Phreniatric Society of Sept. 1886, and the other by Peter Bryce, M.D., Superintendent of the Alabama State Asylum. Without attempting an abstract in full of these papers, we purpose to select some parts of them of both scientific and social interest; since we take it that on no subject is there greater opportunities for serious thought or greater need for increased knowledge on the part of the practising physician. Psychology, or the science of mind, says Dr. Bryce, is so intimately associated with all questions of moral responsibility, that any attempt to discuss them independently must prove abortive. The old idea that mind is a mysterious entity, independent in its origin and characteristics of the body organism, has been in countless ways utterly discredited. We are compelled in every satisfactory study of it to regard mind as a phenomenon (function) of the nervous organism. "As mankind think of their life or health, so they should learn to think of their mind as a potency, conditioned upon the general well-being of the body. Nor should there be any difficulty in affirming that there are as many varieties of mind as there are varieties of organism; and that there has been in the past, reckoning by ages, and in the present, by generations, a genesis of mind, just as there has been, and is now, a genesis of organisms." Correct views of the nature of mind can be in my opinion, inculcated in no way more forcibly than by reference to the principles of heredity. The art of breeding in this century has engaged talents of a high order, and pecuniary means almost unlimited. And the closely observed facts of this most interesting art, prove that not general characteristics only, but very minute details of organization are transmitted to offspring. We have in these facts some very pregnant truths with reference to moral responsibility. Says Dr. Brazon in the Italian Society: "Moral insanity is usually native, or congenital." He places it amongst the phrenasthenias as if it were a bridge of passage from the congenital insanity to the acquired, and it

is notorious that a more or less protracted period of moral is the prelude to some forms of insanity and especially to paralytic phrenosis (general paresis).

As to its essence, moral insanity presents two species or varieties. There are some individuals who, though conserving free, and even potent, their syllogistic faculties, yet often commit extravagances, obscenities and vile crimes, because they possess not that which is called the moral sense; they do not perceive the impropriety of their acts, so that they feel no remorse or penitence, and they even wonder that other persons see any wrong in them. Others again from a mere trifle rush into excesses and then excuse themselves by asserting they could not help it. Prof. Lombroso finds such to be subject to epilepsy, and that their excesses may be influenced by accesses of *epilepsia larvata*.

Other individuals appear again, in whom both species of moral insanity are combined. While the term is being more largely accepted year by year, yet it is necessary to distinguish the true cases of moral insanity from the false or simulated. The following points help us to decide, 1st by ascertaining whether the parents, living or dead, of the individual submitted to our judgment, were affected with mental or nervous diseases; 2nd, whether the same individual presents degenerative characters, as anomalies of the cranium, asymmetry, depression of general sensibility, hyperaesthesia, convulsions, recurrent nervous *tics*; 3rd, whether the offences committed by him had any relation with their cause, and finally whether he has become incorrigible.

The question arises what must be done with persons morally insane. Remembering how intimately associated acts are with feelings, and how these latter are dependent upon physical conditions, it is therefore as Dr. Bryce says, "most important that the greatest care should be paid to diet, and other sanitary precautions that are well known to qualify the involuntary impulses of the organization." But Brazon goes further and thinks that instead of irritating such with undeserved rigor in common prisons, where they may become worse by contact with real delinquents, they should be declared morally insane and irresponsible, and be detained in asylums until they give signs of amendment, for it is unjust that good society should have to live in constant fear on account of their periodic mental eclipses.

Returning again however to the evolution of the state of moral insanity, we have Morselli admirably quoting Lombroso by saying that the conception of moral insanity cannot be well attained by researches in criminal anthropology. The anthropological school call it the type of the mental delinquent, or congenital; we say moral insanity. What this means is indicated in Dr. Bryce's reference to the Jukes' family, whose destiny has been proved by Dr. Drysdale, who found that for seven generations including 709 individuals, every one was either idiot, murderer, prostitute, thief or robber. Setting aside as impossible, the supposition that all these chose to be wicked, we must assume their conduct to have been the results of depraved organization or the passing on from parents to children, along with their physical, their intellectual and moral proclivities.

Referring to educational influences, we find Brazon saying all children have evil tendencies, etc., and that these tendencies are corrected by education. We find this influence for good for instance in the boys of reformatory schools. But according to the teratological, congenital theory this change could not take place. Approaching the same point from another direction, Dr. Bryce points out that the whole result (moral insanity), is not to be understood to be due to organization alone, and no part of it to association and training. These latter must always be credited with decided influences on character. Says Morselli, "It would be absurd and ridiculous to hold that education does no good; we are the products of two factors, heredity and our own surroundings; in a large number of individuals heredity predominates; in a very small number the surroundings prevail over heredity; the result depends on the special circumstances." Dr. Biffi's experience unfortunately confirms the statement, how little is achieved by educational institutions, where children wanting the moral sense are confined. As Dr. Bryce puts it, while education or training, may exercise decided influences in the determination of conduct, the most reliable, the most persistent types of character are the inherited. And this for many obvious reasons one, of which fixity of type, or the faithful reproduction of ancestral traits, is nature's only method of fortifying her long and laborious advance from low to high. Concisely expressed intellect, tastes, desires, will take action as forces and like all nature's forces must

express themselves on lines of least resistance. Along this line comes in the influence of climate and physical surroundings on character. President Buonomo, taking up the discussion developed the point here neatly set forth, where he spoke of the *camarra*, the animal of the slums, (the Bonthron of Sir Walter, or Abel Magwitch of Dickens), living in a stratum of society with a character of its own, "which has taught him that in the circle of his society, he who has recourse to force is respected; he is honored by his chums when coming back in the night, he is able to detail those arts of prowess which we call infamous, but which, in his society, are the badge of honor." This in such is not a morbid disorder, "it is with him a natural, physiological law." Habits, as alcoholism, or use of opium are capable of just such results as flow from confirmed bends of character. Accidents as cranial injuries have been known similarly to alter the whole character of a man. Says Dr. Bryce, after illustrating this point, "Could anything more clearly prove the dependency of mind and moral qualities upon the integrity of brain structure?"

Other points are afterwards taken up as have been those we have touched, and on the point of the protection of society all are agreed that all must be held amenable to the law of the land in some way or other. For some there must be punishment, but with more there must be, says Dr. Bryce, the reformation (attempted) of the criminal. "To reform the vicious there must be brought to bear on them influences closely related to those by which good characters are formed in every well-conducted family."

BACTERIOLOGY.

The Air of Coal Mines.

T. C. Nasmyth, M.D., D.Sc., Edin., has recently published the results of some interesting experiments on the air of coal mines. Since the late Dr. Angus Smith's accounts in *Air and Rain* on the air of coal mines but little has been written:—

"Dr. Smith's observations were made in the year 1863, and since then the methods of coal mining, including ventilation, have been completely altered, so that the air of the mine of to-day may be totally different from what he experienced. As I have been born and brought up in a mining district the subject was one that naturally interested me, and

the further fact that for ten years I have been medical attendant to several large collieries has given me facilities for studying it from what may be called chemical and pathological points of view. No reasons are given to explain why the subject should be carefully inquired into, as I presume they are self-evident.

Anyone who has read Dr. Smith's work will agree with me that the conditions which he found existing in mines were bad. Without entering into any details or discussion as yet into his observations I simply shall mention that, taking carbonic acid as a test and an example of the state of air found, from 339 specimens taken he got an average of 0.785 per cent. No miner at the present time would be asked to work in such an atmosphere, nor would he if asked. From fifteen to twenty years ago mine air was bad. Improved methods of ventilation were not then in general use, and the law on the subject was not so strictly enforced as now, when not only must there be ample provision for removal of the air, but measurements must be periodically made and entered into a book for the purpose, showing the volume and the velocity of the fresh air currents. The test of a candle or a lamp burning is a somewhat rough one, as it is made by the miner. When made in the manner referred to by Smith it is of more value, but the miner's method is a common one, and in fiery pits often such a fatal one that some reference to it may be interesting.

In talking with miners on the subject, they have told me that about twenty years ago sometimes the air was so bad that, if the lamp was unaided, it would not burn, but by constant attention it might be made to give out a feeble light, and it was frequently the duty of boys when too young or too small for harder work to trim the lamps, and keep them burning for their fathers or seniors.

The methods for determining the various constituents in the air of the mines, such as temperature, organic matter, carbonic acid and oxygen, are carried out by those most recent methods which generally have been found most practicable and exact in such circumstances.

The micro-organisms were determined by Hesse's apparatus which consists of a glass cylinder 18 in. long and 2 in. in diameter. At one end a piece of rubber sheeting is stretched tightly over the tube. The other with a tight-fitting plug of india-rubber

through which a glass tube passes. This is connected with an aspirating apparatus. Along the bottom of the glass cylinder is 50 cc. of nutrient jelly. The whole is set up for as on a tripod. The air to a given volume is driven through the tube and over the gelatine.

As regards ventilation, experiments were made in connection with the different methods used. The following table gives some comparative results:

Table showing Relationship of Carbonic Acid, and Oxygen per 1,000,000 vols. and Microbes.

Carbonic Acid.	Oxygen per 1,000,000.	Microbes per litre.
1.397	42	214 moulds 10 bacteria
2.111	30	150 " 50 "
5.812	—	63 "
—	20	41 "
1.267	—	26 "
0.820	—	16 "
0.811	—	25 "
2.175	—	countless
2.562	—	6 bacteria
2.303	—	5 "
3.790	—	0 "
2.630	60	—
2.209	45	—
2.796	30	—
1.187	matchless	—
2.856	39	—
1.352	15	—
1.912	22	16 bacteria
5.182	40	0 "
2.628	30	28 bacteria
0.964	11	25 "
1.454	10	countless
1.675	matchless	30 moulds 30 bacteria
2.063	34	17 "

Ventilation implies two conditions: removal of impure and the substitution of pure air, and those conditions may be obtained either by, first, natural methods, such as by the action of winds, changes produced by alterations in temperature or pressure or by the diffusive tendencies of gases; secondly, artificial methods. We have such examples as the action of fires, fans, jets of steam, steam pipes, etc. The principles of these, however, are not different from natural methods. In the cases of those mines which came under my notice, the variety of artificial methods adopted was the fan method applied on the principle of propulsion. Whether the propulsion method or the vacuum method is the better I cannot decide, and this point falls more under the consideration of mining engineers. In the *Transactions of the Mining Institute of Scotland* there are interesting

papers on the subject, but which leave one undecided on a point which is worth clearing up.

These samples were taken from different mines. The shallow ones are the first on the list. The general effect will be seen in the almost uniform increase of the carbonic acid as the distance from the bottom of the downcast increases. In shallow pits the air at the bottom of the downcast is very good indeed, but in the deep pits I never found a sample as good as in a shallow one, as was to be expected. The oxydisable matter varies, but there are so many substances which act on the permanganate, that the effect must be variable. The micro-organisms do not seem to follow any fixed rule, as in one case very bad samples as regards CO₂ there were none, and the next time I made an examination of the same air I got about twenty bacterial points per litre. Stagnation of air and high temperature are favorable to their growth, but the presence of horses or men is more so.

Of the special forms of microbes obtained the following are some noted, with location in which they were collected :

- A. Sample made at upcast shaft, very foul air. The slides were mainly torulæ, mycelial filaments, bacilli subtiles and some cocci. Number of colonies, 26.
- E. Stables in upcast, air very bad. Moulds 10, bacteria 110.
Slides : bacilli, torulæ and micrococci.
Cultivations : 1. Orange yellow in jelly.
2. Pure white.
3. " "
4. Yellow sh.
- G. Sample taken 1,000 yards from downcast. No work going on. Fans stopped. In 6 slides there were mostly bacilli. 6 colonies in tubes.
- A. Sample made in *cul-de-sac* 1,000 yards from downcast. Moulds 4, bacteria 24.
Slides : nearly all micrococci.
Cultivations : 1. Pearly white growth on surface forming a ring round a central growth.
2. Delicate pink in jelly.
3. Liquefying.

The general condition of the parish is not at all favorable to a low mortality from phthisis, the soil being stiff clay, as a rule, and very wet, marshy in many places and liable to be swept by cold winds,

there being very little shelter either from trees or hills. The housing is also indifferent, and overcrowding prevails to a considerable extent. Those conditions might be expected to lead to a higher death-rate from phthisis, even without the influence of occupation.

It will be at once seen that city rates exceed very much the death-rates from phthisis in an almost purely mining district. Although we have thus a low mortality from phthisis, of course it might be that the effect of occupation might show itself in increased deaths from other causes. A reference to other tables will show that for the same periods as already given, the mortality from all causes given in the mean was 15.79 per 1,000 living, and this, of course, is a tolerably low mortality.

General Considerations and Conclusions.—From comparisons of state of air in coal mines with that in one-room houses, schools naturally ventilated, and manufactories, it will be admitted that it is wonderfully good. The problem of mine ventilation is a difficult one, but by the use of fans it has been solved to a certain and large extent. It would not be easy, if possible, to ensure that the air of mines would be as pure as the air above ground, as so many causes are co-operating to vitiate mine air—respiration and excretions of men and horses; combustion of powder, oil and tallow; the exudation of gases peculiar to the various minerals met with in mines; and the decomposition of wood. To keep the products of all these in moderation a large and ever-moving volume of air must pass in and out of the mine. The sectional area of the air shaft would have to be much larger than present uses demand if the impurities were to be reduced to the quantity found in pure air, but the present system might, in my mind, be much improved by attention to some points which have struck me in the present inquiry, and which I now venture to suggest to those concerned.

Twenty years ago air was very bad in mines, ventilation was almost unknown, and the hours were very long. Nowadays the air is generally good; ventilation is efficiently carried on, and hours of work are short. The miner works hard whilst at his work, but he has short hours and many holidays. In the tables of statistics I have shown that phthisis, contrary to general opinion, is not a common disease amongst miners; and my own every-

day experience for ten years in a large mining population supports those tables. In fact, I know of no disease peculiar to miners, or any disease in excess existing among miners. I have also consulted many other medical men practising amongst colliers, and their opinion coincides with my own. In conclusion, I have to state, as my belief, that the conditions connected with miners' occupation are as favorable to health as those in the occupation of any other workmen, and this opinion is borne out by the vital statistics quoted.

The Etiology of Phthisis

This subject, so frequently touched upon, has been admirably dealt with in an experimental manner, in a paper by R. W. Philp, M.D., F.R.C.P., E., before the Ninth International Congress. From the clinical standpoint, nothing can be more important to the practitioner than to be able to obtain some correct idea of the methods by which the disease progresses, and the factors principally engaged in its causation. The usual causes of death from phthisis have usually been roughly classed, says Philp, under four heads: (1) Progressive asthenia; (2) loss of hæmatisis; (3) the lighting up of fresh inflammatory foci; (4) the absorption of waste products. In his opinion, however, these do not afford sufficient explanation. Each of them was fully discussed prior to the discovery of the tubercle, but since then but little had been added in this direction, though the features and clinical course of an ordinary case of phthisis, and those of experimentally induced tuberculosis, are well defined and strikingly similar. What then, is the *modus operandi* of the tubercle bacillus in leading towards death? Its fatal propensities cannot, he thinks, be regarded as merely irritant or privative. In all probability they are attributable to a power often possessed by it of elaborating new products which are afterwards absorbed. Weber, as early as 1885, had already hinted at such a possibility. Such elaboration has its analogues in the various fermentative processes and products thereof, as of alcohol, lactic acid, etc.

On practically applying the hypothesis based upon such analogies, Philp devoted his attention first of all to the urine.

The results, however, were indefinite. Examination of portions of diseased organs was similarly abandoned owing to indefinite, determining evidence.

Sputum was, for a number of detailed reasons, resorted to. Extracts were used for experimentation from different phthisical sputa. The sputum was carefully collected in a clean vessel in the wards of the Royal Infirmary, Edinburgh. From (1), all such cases used as showed signs of advancing phthisis; (2), all those with persistently elevated temperature; (3), sputum from smokers was set aside; (4), the reaction of the sputum in all cases was required to be either acid or neutral; (4), the presence, and, approximately, the relative abundance of the tubercles was in every instance ascertained.

The sputum was then measured and diluted with three volumes of rectified spirit. Having been placed in a Florence flask with neck covered with muslin, it is placed in a steam sterilizer and kept at 36.40 C. for twenty-four hours. The fluid is then carefully filtered through muslin and filter paper. Then evaporated down to its bulk.

This is now become a muddy-looking extract. This process of drying out is conducted slowly to prevent escape of more volatile products. The extract was then used for injection. The extract is extremely unstable and liable to attack of fungoid growths. The extract was used always within two or three days from time of preparation.

The experiments were made to show: (1), Its effects on the system generally; (2), its effects on the cardiac rate; (3), to test the antagonistic effects of certain drugs, especially atropine, and especially as seen in the cardiac rate.

Then follows a series of experiments on (a) frogs, (b) on mammalia.

On frogs the result showed a striking uniformity—a progressive increase in the symptoms being observable in the increased dosage, till tending toward the development of voluntary motor depression—contraction of pupil, but with reflexes remaining normal. On mice .3 c. c. of the extract produced definite symptoms.

On rabbits the effects were with considerable doses produced, but tended to become transitory while the system became tolerant of the poison.

The poison proved a steady cardiac depressant. In larger doses the cardiac rate was reduced from 44 to 18 or 14 in four hours, associated also with decrease of weight.

Atropine was found to alter the effects. Most perfect antagonism was produced by $\frac{1}{16}$ m.m. of

the sulphate. The results were seen either when atropine was injected with the extract or afterwards. In some ways these experimental results

are of real value, and it is to be hoped that they will be followed up thoroughly and conscientiously.

REPORTS OF SOCIETIES.

Lindsay Sanitary Convention and Summer Session of the Association of Executive Health Officers.

This meeting was held as announced last month, and proved to be a genuine success in every way. The Opera Hall was well filled at most of the sessions with physicians and citizens, some of whom took part in the discussions. Among those present at the different meetings were:— Mayor Walters, Dr. C. W. Covernton, Toronto; Rev. Dr. Williams, Lindsay; Dr. E. Griffin, Brantford; Rev. Mr. Anderson, Lindsay; President P. P. Burrows, Lindsay; J. J. Cassidy, M.D., Toronto; J. J. Harstone, M.A., Lindsay; Mr. Knight, Public School Inspector, Lindsay; H. P. Yeomans, Mt. Forest; J. J. Coventry, M.D., Windsor; Francis Rae, M.D., Oshawa, Chairman Provincial Board of Health; P. H. Bryce, M.D., Toronto, Secretary-Treasurer, do.; Dr. Lachapelle, Chairman Quebec Provincial Board; Dr. Pelletier, M.D., Secretary Quebec Provincial Board; Dr. Hutchison, London; Dr. Macdonald, Hamilton, member Provincial Board of Health; Dr. Lundy, Preston, and others.

FIRST SESSION—TUESDAY AUGUST 14TH, 2 P.M.

Dr. Williams opened the meeting with prayer.

The following official address of welcome was presented by the Mayor:—

Mr. President, Vice President, and Gentlemen of the Association of Executive Health Officers:—

As Mayor of the Town of Lindsay, I beg on behalf of the Municipal Council and citizens of the town, to extend to you a hearty welcome, on the occasion of this, your first official visit to our town, and further, we greet with pleasure the presence amongst us of Dr. Hewitt, of the State Board of Minnesota, also President of the American Public Health Association.

The feeling of satisfaction with which we look upon your visit, is intensified by the fact, that many of the sanitarians who are now present and about to take part in your important deliberations, have been compelled to exercise a large amount of self-denial and to experience a great loss of time, and inconvenience in taking part in the important discussions on sanitary matters exhibited by your programme.

Again, gentlemen, allow me to say, that you are cordially welcome to our town, and express a hope that your labors may be pleasant and conducive of much good, not only to our own Province, but to the whole of the Dominion of Canada.

I have the honor to be your obedient servant,

T. M. WALTERS,

Mayor.

Dr. Bryce, Secretary-Treasurer of the Association, replied, expressing appreciation of the invitation and reception so far extended, and doubtless to be further enjoyed by the Association.

Judge Dean, thereafter, in the name of the citizens, in a pleasing address welcomed the visiting Association to the Town of Lindsay. He expressed personal pleasure at welcoming a medical association to the town. The Judge said he looked upon the profession as the epitome of hospitality. We welcome the coming and speed the parting guest. Much might be said regarding the disinterestedness of the profession. After listening, as Judge, to medical witnesses, he thought it only another illustration of how many-sided truth is. We have a common saying that when two doctors are going up street together somebody is going to die. But you are here to-day especially as healers, and he hoped the time would come, as was expressed by Dr. Bryce, when medical preventive officers will be remunerated as they deserve for keeping people well rather than curing them after being taken sick. Said an eminent medical man recently, "The medicine of the future is preventive," and he felt sure that in the future, at any rate, much disease will be prevented, and much suffering thereby avoided. To-morrow we extend our welcome to you by inviting you to visit our great sanitarium, Sturgeon Point, said by many to be unexcelled in the Province as a health resort.

Dr. Coventry, ex-President of the Association, responded in the name of the Association, to the citizens' welcome. He thanked the citizens for their hearty reception, and especially the acting President, Dr. Burrows, for the thorough manner in which the work of organization had been carried on. Doubtless all Local Boards got the hearty invitations extended, and doubtless have acted in much the same way; that is, let those officers come who wished to.

Dr. Burrows made some words of explanation, after which he called upon Dr. C. H. Hewitt, of Min-

nesota, President of the American Public Health Association and Secretary of the State Board. Dr. Hewitt expressed great pleasure at being present at a Canadian Health Association, and trusted to assimilate and carry home new ideas regarding methods, with the view of still further aiding the progress of work in his own State and country.

The regular programme was then proceeded with. Dr. Covernton presented his paper on a "Brief Retrospect of the Progress of Medicine, Curative and Preventive, 1828-1888, or the Review of a Lifetime." Dr. J. D. Macdonald, a member of Provincial Board of Health, followed the reading of Dr. Covernton's paper, and pleasantly recalled the times so eloquently referred to by Dr. Covernton, referring especially to the present high status of the profession, as also to the greatly superior advantages of the young medical students and practitioners of to-day. Dr. Macdonald referred to the unnaturalness of any member of the profession in not wanting to prevent disease. To prevent has always, as a general rule, been characteristic of the profession.

Dr. H. P. Yeomans, member Provincial Board of Health, in the absence of Dr. Griffin, next on programme, presented his paper on the "Sanitary Supervision of Schools."

Dr. Burrows introduced the discussion on the paper and remarking concerning the unsanitary condition of many of our public schools, stated that in his opinion it was time that a medical inspector of schools be appointed.

Dr. Vaux, Medical Health Officer, Brockville, followed, remarking on the difficulty which would exist in grading children in their seating in schools in order to have the sanitary seating of them carried out properly.

Dr. Hewitt, Minnesota, then following, stated that some difficulty regarding the sanitary supervision of schools exists there. Theoretically our medical and sanitary views may be correct, but when we are asked to adapt them to the school system, it is going too far. The machine must not be disturbed. But the radical wrong in the machine must in all seriousness be removed first; and here the first, middle, and last difficulty is met. After all, however, schools exist only for one end, *sana mens in corpore sano*; and if they do not fulfil this end, schools are in whole, or in part, failures.

Dr. Covernton, Toronto, continued the discussion, and referred to the difficulties even in England, of getting out of the rut in which the school machine has fallen, and referred to the good results which it may be hoped will grow out of Mr. Ritchie's Local Government Bill now before the English House of Commons.

H. Knight, Esq., Public School Inspector for East Victoria, then followed, referring to the many good

points in Dr. Yeoman's paper, and to the improvements which really have taken place during the years he has held his present position. It is, however, hardly fair to expect trustees to throw out desks supposedly good four or five years ago for others just discovered good. Ventilation and heating are much greater difficulties in connection with this question. Till trustees see that the health of the pupils is more to be considered than the expenditure of a few dollars, results will be imperfect. There is a real difficulty in obtaining a good water supply for the schools.

Dr. J. B. Lundy, Medical Health Officer, Preston, referred to the immense importance of this subject, than which nothing on the programme is more pressing. The reader of the paper had referred to the advantages of the Smead-Dowd system, but its expense makes it inapplicable to many of our country schools, at least, so the trustees might think. The jacketed stove has in some cases served a purpose, but in the withdrawal of pure air he had found difficulties. The doctor referred to the practical difficulties he has found in connection with defects of eye-sight.

Dr. Hewitt, referring again to this matter, explained how he has managed many of the practical difficulties. Especially is it desirable to have floors oiled inasmuch as it prevents the accumulation of dust. He further referred to the great dangers as well as difficulties which arise in connection with the isolation of infectious diseases, and indicated some of the practical methods of dealing with it.

Dr. J. Coventry, Windsor, said that the difficulty in most cases lies primarily in connection with the teacher. If the teacher does not have a high domestic ideal of hygiene they will not have it at school. In few cases, indeed, has he found even one, not to mention several thermometers, in a school-room. But a teacher must be supported. She must have the practical aid of a janitor. He may not need to be there all the time, but he is needed there at least in morning, noon, and after school. The heating difficulty may be in part got over by the adoption of the Jackson grate, much more effective and economical than the ordinary grate.

Col. Deacon said that the question arises, judging from the discussion, to ask, "Is our civilization a failure?" He moved the adjournment of the discussion and of the meeting.

SECOND SESSION MET AT 7.30 P.M.

Rev. Mr. Anderson opened the meeting with prayer after which Dr. Bryce read the paper by D. B. Dick, Esq., Architect, Toronto, on "Points to be observed in Constructing a Healthy House." Discussion thereon was, on motion, deferred, after which Dr. P. P. Burrows, President, read his annual address (see elsewhere), after which Dr. Chas. N. Hewitt, Secretary State Board of Health, Minnesota, and President of Ameri-

can Health Association, delivered an eloquent address on "Practical Suggestions on International and Interstate co-operation for the Prevention of Disease and for Stamping out Epidemics." The lecturer spoke of the necessity of speaking in a popular manner in order that the people and their officers of health should be brought in close, intimate, and friendly relationship and co-operation. What does the subject mean? Not quarantine. That word has passed and co-operation has taken its place. What is the unit on which we have to act or to take action? It is the family, whether clean or unclean, this is the unit! Our ideal is a clean and healthy family; *i.e.*, a clean person. This is not quarantine, as France shutting out Germany against cholera. It is a household disease. It is the cleansing there; we know that the infection of a disease, say small-pox, may be cultivated, either artificially or externally, indefinitely. Let us discuss one of these diseases, say small-pox—and we know how easily the municipal mind gets frightened at this. This we can handle, but it is those other diseases, diarrhoea infantum, diphtheria, etc., which are of most importance from their mortality. Forty per cent. of all deaths occur under five years from these causes. Again, take phthisis which causes 11 per cent. of all deaths, and yet we sit down stolidly as if they were to be. See the difference. Think of the great cholera conference at Rome. There they sat and sat and discussed a disease prevailing there only partially and locally, and yet these other diseases pass unnoticed. Now we see the results of sanitary co-operation in regard to cholera and small-pox, in which co-operative and preventive measures have usually taken place. Now we would get the same results if we applied ourselves to co-operation in regard to these other diseases. The terms of Interstate and International co-operation, etc., are only convenient for classification, and do not alter in their nature from that of individual co-operation and isolation. The absence of co-operation was illustrated by an outbreak of diphtheria amongst Norwegians in Minnesota. Compulsory isolation and disinfection were evitable, they were adopted and the disease was eradicated. Other illustrative cases were given, while it was further stated that diphtheria, unlike other zymotics, may be taken again and again. The speaker thought that the public good demanded placarding and isolation, even though a hardship. Better for the municipality that the expenses of such a case be paid. Another good way is one being adopted in many places, especially in towns the size of Lindsay, *i.e.*, to have a small isolation hospital. Another way adopted frequently in Minnesota is to erect a tent and isolate in that. The speaker said these illustrations have been made to show how much can be done by the individuals of the community in aiding the executive officers in doing their work. If the people continue to do this in the 700 municipalities in

Ontario, the example will become even more contagious than any of these diseases and may even spread across the line in spite of the protection tariff, and even help people there as you have helped yourselves.

Dr. J. J. Cassidy then continued in the paper on "How to Prevent Consumption." Dr. Hewitt in discussing this paper referred to the serious responsibilities laid on the Medical Health Officers. He was afraid that methods of compulsory isolation for consumption would be a failure. Dr. C. W. Covernton, of Toronto then spoke, stating the opinion of Italian physicians in favor of having isolated hospitals for consumptive diseases.

Dr. Yeomans, Mt. Forest, then said that the zymotic origin of tuberculosis affects most practically the question of inheritance and curability of phthisis. Dr. McClellan, of Trenton, continued the discussion, stating that it is a question, as yet undecided, as to the best practical methods of dealing with this infectious disease. Dr. Griffin, Brantford, thought that perhaps the subject was one which was beyond our ability to express positive opinions about, and perhaps it was of doubtful expediency for the Association to discuss the question before the general public. He would not be prepared to adopt any enforced isolation treatment. Dr. Bryce continued the discussion, pointing out the zymotic character of the disease from statistics and experiments and clearly indicated the sanitary bearings of the question, and the necessity for teaching the public the precautionary measures to be taken. Dr. Macdonald, Hamilton, made a few remarks concerning the modern advances in our knowledge of this disease. Dr. Cassidy thereafter closed the discussion and pointed out that the task of prevention of a bacillary disease was the subject of the paper and that it was peculiarly our duty to teach and take measures for its prevention.

THIRD SESSION—AUGUST 15th.

The meeting met at 10 a.m. and was opened by prayer by Rev. C. H. Marsh. Dr. Bryce then read the minutes of the last meeting of the Association of Executive Health Officers, which were approved of. A number of regrets at inability to be present were read from Hon. C. W. Ross, Hon. Chas. Drury, Prof. Wright, Prof. Brewer, Senator Paquet, etc.

Dr. Griffin, of Brantford, then ably introduced his paper on "Notes on Inspection of Public Milk Supplies," in an address. He stated that milk inspection is yet in a somewhat immature state, but the necessity for pushing the work is only too apparent to a body like the Health Officers. In his district he thinks there are three difficulties, *viz.*, watering, skimming, and uncleanness, the latter, by far, probably the most important from the standpoint of health. He is quite certain from experience and enquiry, that the watering takes place in the rinsing of the pails with water just before milking. As regards skimming, he believes that it is in

keeping back of the last parts of the milkings or the strippings for cream.

The practical methods of dealing with the inspection in Brantford was then taken up. A permit is issued to vendors every half year, by a printed form, which is signed by the vendor as an agreement. If they refuse inspection beyond the limits of the town, the permit is taken from them. The Inspector makes periodical visits, and gradual but great improvements have been made in the condition of the dairies. Dry earth is used in some instances. As regards sickness in cows, there is a real difficulty. First, the ignorance of the milkman, another, gross carelessness or culpability, in mixing the healthy milk with the whole.

Dr. Griffin thinks there should be some legislation fixing the standard of milk. At present there is some difficulty in methods for determining the quality of milk. By lactoscope Dr. Griffin thinks the practical ends may be arrived at, if a minimum be first low. Definite chemical analysis for proof of adulteration is costly, lengthy, and is not of use for practical prosecution. When first tested, Dr. Griffin found in Brantford supplies about 2.57 of butter fat. Taking milk direct from lean, poorly-fed cows, gave him 3.75% of butter fat, some up even to 4.5%, all with lactometer. On August 9th, 1032.2, specific gravity, 2.2% of butter fat. Dr. Griffin is perfectly certain as to the milk man being dishonest. He took milk supplied to hospital, having 1032 specific gravity, 2.3% of butter fat. He took a sample of so-called cream and got a specific gravity of 1023 and 9% of butter fat.

In Massachusetts a standard is supplied and all milk not coming up with it is seized and vendors prosecuted. Dr. Griffin thinks that milk not coming up to 1029, and a butter fat of less than three per cent. should be condemned. He would make standards, three per cent., three and a half per cent., and four per cent., and the lowest should be at least maintained.

Regarding the tuberculous dangers in milk, Dr. Griffin has no doubt but that in his county tuberculous milk was even now being mixed with drinking milk. It was most necessary that every cow in a district should be examined by a veterinary surgeon at least once a year, and every tuberculous animal destroyed. Dr. Griffin objected to a remark by the Dominion Analyst that the man who added water to a high quality milk should be fined, while the man who sold a poor milk from poorly fed cows was let free. The doctor said all adulterations should be punished. We must have milk protected by law, inasmuch as many of the consumers, sick persons and children, are not competent judges of a good milk. The moral status, both of consumers and milkmen, must be raised, and he hoped the clergymen present would make a note of it, and teach their people the sin of lying and stealing, and the good people doing these things might

think about the sin of stealing the cream. He illustrated the sin committed on the poor people who get the cheap, yet poor and unwholesome milk supply. Dr. Griffin is quite sure, however, great and good results from the Association's work in this connection have resulted and will still further result.

Dr. Cassidy, in speaking on the paper, presented a letter by Dr. Ryall, Medical Health Officer, Hamilton, on this subject, adding that if this Association deem it proper now, the discussion of a standard ought to be taken up. The question, doubtless, has a commercial aspect as well, and a high standard must be paid for.

Dr. McClellan, of Trenton, indicated that the methods of inspection in vogue in Trenton, with one or two convictions in the police court, had greatly improved the quality of milk. He further stated how inspection by the veterinary surgeon had tended to raise the standard of cows and of milk.

Dr. Vaux, of Brockville, gave the details of the methods adopted there for preserving the milk pure and good.

Dr. Hutchison, Medical Health Officer of London, speaking, said, Quevenne's lacto-densimeter will detect skimming and watering, but it is imperfect in some respects. His office had 137 chemical analyses made last year, and these served to correct the imperfections of the instruments.

The law at present amply suffices to enable officers to prevent sale of poor milk. Night skimming is the commonest method of removal of cream. This milk is then mixed with the morning's milk.

Dr. Bryce, in speaking, mentioned difficulties in examining milk by different methods. Each officer can by some practice establish his own practical working standard, which will serve for practical purposes. Dr. Hewitt, of Minnesota, thought the publication of monthly analyses would be a most important practical method of raising the standard. Dr. Hutchinson stated this had been done in London last spring, and as a result some men doubled their sale while others lost nearly all their custom. Dr. Coventry, Medical Health Officer of Windsor, pointed out the difficulty in this connection, viz., that the poor will have still to be buying the cheap milk: we must fix the standard so that the poor will be sure to get good milk. Let it not be too high, but protect even the buyers of the worst.

The meeting then adjourned to go on the excursion given to the convention by the cottagers summering at Sturgeon Point. A lunch was provided in the fine hotel, and a pleasant afternoon was spent in enjoying the hospitality of the cottagers.

In the evening the citizens' banquet was held in Lindsay, and a most enjoyable affair it was under the chairmanship of the genial chairman of the Local Board, Col. Deacon. Toasts, interspersed with songs and Scotch music and dancing, made the evening pass

off merrily, and the Association will not soon forget the genuine reception and liberal hospitality of the town of Lindsay.

FOURTH SESSION—AUGUST 16TH.

Association met at 9.30 a.m., when the President called on Mr. W. Chipman, of Brantford, to read a paper on "Sewerage of Small Towns."

Dr. Griffin opened the discussion on the paper, and expressed his great pleasure at hearing the paper, only that it was not sufficiently extended in its details as he would wish. He was interested, inasmuch as his town of Brantford was considering the matter. He hoped that the paper would be widely published throughout the country papers, as he was sure much good would come of it. In several old towns with combined systems they were now laying down the separate small pipe system in the old sewers, leaving the latter for storm sewers.

Dr. Burrows thought that the small towns especially should be encouraged to adopt this system. He instanced the great results which grew out of the adoption of the system in Memphis, where it was first adopted.

Dr. Coventry, Windsor, referring to the movement of the air in sewers referred to a recent experience of his in examining the interior of a sewer. They found in the same sewer in different parts that the air currents moved in different directions. He urged that as at present constituted all the ventilation possible should be given sewers.

Dr. Coventry, of Windsor, then read his paper on "The Practical work of the Board of Health."

Letters of regret at absence were received from Dr. Alan Cameron, M.H.O., Owen Sound; Dr. Bogart, Whitby, M.H.O.; Dr. Curry, Windsor, M.H.O.; Dr. Graham, Fenelon Falls.

Dr. Bryce then delivered an address on "Air Microbes illustrated by Flask Cultures."

Dr. Yeomans referred to a house of scarlatina. Dr. Bryce's experiments and investigations show that malignancy may be much mitigated.

Dr. Vaux asked whether we have ready means of destruction of bacteria. Dr. Bryce replied.

Dr. Cassidy illustrated by recent French experiments by Lucas Champoniere how smallpox wards in a Paris hospital were with safety converted into surgical wards in which 161 major operations with two deaths succeeded.

Dr. Sangster urged that volatilizing corrosive sublimate was a very great aid to disinfection.

Dr. Hewitt then referred to the fact of there being harmless microbes as well as pathogenic ones.

Dr. Coventry, of Windsor, referred to the beneficence of bacteria.

Dr. Clark's and Dr. Sangster's papers were, on motion, taken as read.

The Secretary then read telegrams from the Mayor, M. B. Morrison, Esq., and Local Board, of Trenton, also one from the Mayor of Brockville, G. H. Weatherhead, Esq., inviting the Association to hold its next session in those places.

The question after discussion was on motion left for the decision of the Executive Committee.

Dr. Coventry thereafter presented the report of the deputation appointed at the annual meeting to wait upon the Government.

The following is a copy of the report:

The deputation was kindly received by the Attorney-General and Treasurer, who listened to the arguments in favor of the Government's requiring all the time of Dr. Bryce to be devoted to the interests of the public health, and to supply such funds and laboratory appliances as would enable him to carry on investigations into the causation of disease.

The Attorney-General promised to give the matter his serious consideration, and spoke favorably of the idea.

The growing appreciation of sanitary work, the advances in executive health work by Boards and Medical Health officers, make the necessity yet more manifest that the Government should specially undertake the task of lending them assistance in determining the exact causes lying at the origin of disease both of men and animals, experiments in the matters of construction and ventilation, the sources and conditions of pure water supplies, and the discussion of the best methods for our various cities, towns, and villages. This Association, of which there are so many Medical Health Officers willing to work in the interests of public health, would demand that the Government at least lend them such support in this direction as to give them a medical office to which they might refer in difficulty and also give them some one to devote his time to the work.

Dr. Griffin explained further the results of the deputation, pointing out what seemed to be the difficulties in the way.

The following resolution was then passed:

Moved by Dr. Lundy, seconded by Dr. Yeomans, That the members of this Association of Executive Health Officers desire to express their hearty appreciation of the reception, the cordial welcome, and many hospitalities extended to them by His Worship the Mayor, the corporation, and citizens of Lindsay and Sturgeon Point during the time of their visit here. Carried.

Moved by E. Griffin, seconded by Dr. Coventry, and Resolved, That a Committee composed of Drs. Ryall, Hutchinson, Vaux, Bryce, and the mover, be appointed to consider the question of Milk Standard Methods, of analyzing and testing milk, and other matters connected with milk inspection, and that the Committee report at the next meeting of this Association. Carried.

The Association finally adjourned.

GENERAL NOTES

THE composite organization known as the Congress of American Physicians and Surgeons, is to hold its first regular meeting in Washington, on Sept. 18th, 19th, and 20th. Why so important an organization should signalize the beginning of its existence by a meeting in Washington is apparent to the uninitiated, but those who know what Washington is in September, might naturally suppose that the assembled wisdom desired to try its united therapeutics upon the cholera Washingtoni, of which, many who attended the International last year carried away such well impressed memories. However this be, we have no doubt but that this splendid idea of holding in one grand conference the sessions of the various medical organizations of the Union, will prove a grand success. The invitation is extended to a number of our leading Canadian physicians and surgeons and we understand that a number of them will present papers then.

At an early age, and at a stage of his professional career where success had been in a high degree attained, our esteemed friend, Dr. Charles Archibald, has passed away, from Bright's disease. With more than ordinary information gained from experience as a teacher for years, Dr. Archibald was always respected for his judgment and good medical counsel, while as a public minded citizen, he always took a keen interest in politics and public matters generally. He dies generally regretted.

WE regret to chronicle the death of the wife of Dr. D. Gibb Wishart, M.A., M.D., of Toronto, which took place in this city a fortnight ago. We are sure that Dr. Wishart has the sincere sympathy of his many friends and others who know him as the recently elected secretary of the Ontario Medical Association.

ZOMOSE is the name of a new food product invented in Geneva which consists of extract of beef with the addition of different vegetables and spices. Its use is recommended in cases where a good broth, as in sick rooms, is to be prepared in a short time and may be added to rice and other dishes to make them more palatable and nourishing.

OUR best wishes for a speedy return to health go with our old friend Dr. Arnott, dean of the Med-

ical Faculty of the Western University, who is leaving for California with the intention of residing there for a time. The address presented by the members of the Faculty on the occasion of Dr. Arnott's departure but expresses the high regard with which the doctor is held by all who know him best.

M. RENDU reports a case of a woman of 28 years, of hereditary neurotic tendency, chlorotic for 18 years with acute moral perturbations. After a complete cure, she married and had two healthy children. After a year she showed all the functional and physical signs of an acute aortitis with *angina pectoris*. These conditions disappeared under the influence of two grammes of iodide of potash daily. The iodide was well borne, but she developed nervous symptoms, and a considerable change of character, and afterward in spite of the stoppage of the treatment all the symptoms of Basedow's disease (cardiac palpitation, exophthalmia, etc.) There was no appreciable tremulousness nor hypertrophy of the thyroid. M. Féréol had grave doubts as to the pathogenic properties of the iodide in this case, and was inclined to attribute the results to the old neurotic tendency.

M. BALLET (*Revue Générale D'ophtalmologie*) has presented to the Hospital Medical Society, Paris, a patient to whom M. Debove had already presented to the Society, and who is affected both with hysteria and exophthalmic goitre. Apart from the coincidence of these two affections, this patient shews a paralysis of the third, fourth, sixth, and seventh pairs of nerves. The motor branch of the fifth pair and the hypo-glossal appear whole. The patient has polyuria. The urine contains neither sugar nor albumen. The author has remarked that this paralysis of bulbar nerves in the course of exophthalmic goitre, noted by several authors, and undoubtedly more frequently than is generally supposed, because attention has not been sufficiently drawn to it, illumines the pathology of Basedow's disease. After these facts the affection can no longer be attributed to a lesion of the trunk of the great sympathetic or the pneumo-gastric. They further confirm the opinion that the morbid trouble has the bulb for its primitive seat.