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## *Original Contributions.*

ADDRESS TO THE ASSOCIATION OF EXECUTIVE HEALTH  
OFFICERS OF ONTARIO.\*

BY J. J. CASSIDY, M.D., PRESIDENT.

*Gentlemen of the Association:*

LADIES AND GENTLEMEN,—Of the many subjects which claim the attention of an association such as ours, some have already been discussed at former meetings and some are comparatively new. One of the more important of the latter is the regular daily medical inspection of schools. As you know, according to Schedule B of the Public Health Act, it is the duty of a medical health officer of a municipality, if thought advisable by the Board of School Trustees, to act as Medical Inspector of Schools, as well as advisory officer in matters pertaining to school hygiene. When a contagious disease, such as scarlet fever or diphtheria, attacks a number of pupils attending a school, the services of the Medical Health Officer are called into requisition by the Board of School Trustees in order that the necessary preventive measures, such as isolation and disinfection, may be put into operation. As a matter of fact, in our own city schools at least, the services of the Medical Health Officer are frequently required, and the reason of this is based on a fact, which has long been known to exist, namely, that the public school is always a centre of infection towards which the contagious diseases, incident to child-life, make their way from infected homes, and from which these same diseases are carried to

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\* Delivered at annual meeting in London, Ont., September 13th, 1899.

other homes. The truth of this observation has been frequently shown in Ontario. Our present system of placarding houses in which the infectious diseases are located is only partially beneficial, even when all cases are promptly reported by the attending physician, for the reason that in most cases a physician is not called to attend the patient till after it has been possible for many of the child's mates to have become infected. The symptoms presented by numerous cases of diphtheria or scarlet fever, in the absence of an alarming epidemic, are not regarded by parents at the onset as being of sufficient importance to warrant seeking medical aid, or even detention of the child from school; so that for days, perhaps, the child is permitted to cough, sneeze, or expectorate the germs freely, while coming in close contact with other children. The like is true of other infectious diseases to which children are especially subject.

In order to prevent the spread of the disease from the school, daily medical inspection of schools has been introduced. Work of this kind has been in operation for many years in the city of Brussels, Belgium. The city of Boston in 1894, at a time when an epidemic of diphtheria showed the authorities that a medical reform must be adopted, began a system of daily medical examination of the schools. Dr. Durgin, Chairman of the Board of Health, thus describes the methods by which the work is carried out in that city:

"The Board of Health divided the city into fifty districts, giving an average of about four school-houses and fourteen hundred pupils to each district. No difficulty was experienced in finding well-qualified and discreet physicians who would undertake the duties prescribed; and the Board selected and appointed one physician for each district. His duty was to make a visit to each master's school daily, soon after the beginning of the morning session. The master received from each of the teachers in his district early reports as to the appearance of illness in any pupil in his charge. These reports are given to the visiting physician, who at once examines the reported children and makes a record of his diagnosis and action in books furnished by the Board of Health for that purpose, and kept in the custody of the master. If the visiting physician finds the child too ill, from any cause, to remain at school, he advises the teacher to send the child home for the observation and care of his parents and family physician. If illness is from a contagious disease, the child is ordered home and the case reported to the Board of Health. The disposition of the sick child while at home, and the proper isolation of cases where contagious diseases develop in such children, as well as giving them a warrant for returning to school, depend principally upon the school inspector."

During the first two months 4,962 pupils were examined and 564 were found to be too ill to remain at school. Of these 212 suffered from contagious diseases, 43 being cases of diphtheria.

Diseases of the throat were found in 1,749 pupils. Diseases of the eye, ear and spine were frequent. In 1896 the number of infectious diseases was found to be less in the Boston schools than in 1894.

New York began this system early in 1897. Of 8,960 pupils examined, 1,156 were too ill to remain at school. Among these there were of

Specific infectious diseases.....	267	cases.
Oral and respiratory diseases .....	3,934	"
Ear " .....	66	"
Eye " .....	382	"
Skin " .....	628	"
Miscellaneous " .....	3,687	"
Diphtheria " .....	26	"
Scarlet fever " .....	8	"
Measles " .....	59	"
Mumps " .....	54	"
Chickenpox " .....	35	"
Croup " .....	71	"
Tuberculosis " .....	3	"

From these figures you will see the importance of daily medical inspection in connection with public schools. Its protective value to the public, and to school children in particular, cannot be over-estimated. All know how easily the contagious diseases of children may be and are disseminated, and how indifferent parents and guardians are to the protection of their own children, or others, from infectious and contagious diseases in school and at home. All know how these diseases in children lead to after results, impaired vision or hearing, chronic throat difficulties, diseased nervous systems, by which their effectiveness as pupils and students is impaired, and that thereby the work of education is seriously hindered, if it is not in the case of many pupils rendered altogether impossible.

As it would be impossible for a medical health officer in a large city to undertake school inspection in addition to his other duties, a sufficient number of local physicians should be engaged by the School Board for the purpose. In small towns and rural municipalities, school inspection could be done by the medical health officer of the municipality, a reasonable salary being paid him for this addition to his usual duties.

You will naturally expect me to say something of consumption, a disease which, for the people of most civilized countries, has, in the light of recent investigation and statistics, become a subject of the greatest interest and importance. It will not be necessary to discuss here the current opinions held by physicians of the influence of Koch's bacillus in the causation of that disease. It seems, however, that while the agency of the bacillus as a causative factor of consumption is proved, it is equally true that this microbe can only do harm to persons whose vital resistance is low, and who thus offer a suitable soil for its growth. It is recognized to-day, more clearly

than in the past, that the successful treatment of consumption is largely preventive in character, and in a great number of cases it must be applied to the infant and young child. Children are in their lives much like plants, and thrive or fade according to the amount of intelligent care devoted to them. In their early years, sunshine, fresh air, warm clothing, and wholesome food are necessary to their very existence, and if these are generously provided, children grow up to become healthy men and women. Too often, however, their early lives are passed in crowded, unclean, damp houses; their food is insufficient or unnutritious; their surroundings are most hurtful and anti-hygienic, so that it is no wonder if they become rachitic, scrofulous, anemic, particularly if, as is too often the case, there is an alcoholic or other taint on the side of at least one of the parents. Their emaciated and weakened bodies, wanting in proper vitality, form a favorable and fruitful soil for the propagation of the dreaded bacillus, of which they ultimately become the victims. Any agency, private or public, that will provide sunlight, pure air, wholesome food, and last, but by no means least, intelligent medical care for the children of the poor, will assist in remedying the formidable evils from which they suffer at the dawn of life, and will, therefore, lessen the number of children who now pay a large tribute to the devouring monster, consumption. You are all aware that the success of the experiment at Nordrach, in Germany, has powerfully illuminated the somewhat gloomy chapter of the treatment of consumption. Up to a very short time ago, climate was claimed to exercise a very important curative influence—to be, in fact, the curative influence in the successful treatment of this disease. Other things being equal, climate has a good deal to do with the case.

Dr. Douty, writing from Davos to the *British Medical Journal*, asks: "Why has phthisis been unknown in the Engadine and Pratigau? The natives live on miserable food, shut up for months and months in the most insanitary of houses, yet they have not succumbed. They have had chances of being infected during the last thirty years. In Sicily, again, the natives live under almost worse conditions, with a very meagre diet, and yet the percentage of deaths from phthisis is one of the lowest in the world. The crofters of Scotland, the laborers of Devonshire, the peasants of Ireland, live under similar but better conditions than the natives of the Engadine and Pratigau, but they are decimated by tuberculosis in some form or other. How is this? It is climate that has to answer for it, and to take them away from their damp climate is the first essential in making a cure. Altitude is an important factor in climatic treatment, owing largely to the diminished atmospheric pressure and increased activity of the respiratory organs. Altitude is sometimes associated with treatment of phthisis by cold air and ozone, as practised at Engadine, but it can act quite independently of cold."

The editor of the *Indian Lancet* records an interesting observa-

tion made by a French physician, Dr. Bertillon, some twenty years ago, that pulmonary phthisis ceased making progress, and that the symptoms disappeared, if the patient went to reside at a mean altitude between the level of the sea and the line of perpetual snow; but that the symptoms would immediately return with increased violence if he or she went down again to a lower level. He adds: "This theory has been amply verified, and the two following cases, which have never yet been published, fully confirm it. A French gentleman of fortune, after leading a very fast life in Paris, abandoning himself to every kind of excess, fell ill and soon displayed the characteristic signs of lung disease—cough, with hœmoptysis, nocturnal sweats, loss of appetite, general debility, etc. He consulted Dr. Bertillon, who told him plainly that if he did remain in Paris he was a lost man, and that his only chance was to take up his residence at Briançon, an important fortified town in the French Alps, which fulfils exactly the conditions of altitude above mentioned. He obeyed his physician, and in a very short time all the symptoms of his malady disappeared, he recovered his appetite and good spirits, and remained a whole year at Briançon in excellent health. But in an evil hour, thinking himself cured, he returned to Paris, and once more joined again in the pleasures of his former associates. But his old enemy was anxiously waiting for him; he began to cough as he had done before, and to spit blood, and had to take to his bed, from which he never rose again, dying after a short illness.

"The second case is that of an Irish lady who died in the city of Mexico six months ago, aged sixty-eight, having always to the last enjoyed the best of health, although when she went there twenty years ago she was deeply consumptive, her left lung being almost obliterated, and herself given up as lost. But being a sensible woman, and having heard of the altitude theory, and that the city of Mexico fulfilled the conditions of being at the mean altitude between the snow line and the sea level, she wisely remained there until she died of general debility and break up."

In considering climate we consider *altitude*, the *dryness of the air*, the amount of sunshine, the diathermancy of the sun's rays, the absence of fog or mist, the absence of wind, etc., and we must think what effect all these may have on the blood pressure, and, therefore, on the secretions of skin and kidneys, the pace and depth of respiration, the secretions of the tubes and of cavities; on the blood-making tissues, on the blood itself, and on the tubercle bacilli themselves. Are all these conditions and effects the same in England as they are 6,000 feet up in the Alps? Certainly not; and yet other things taken together have more to do with the cure of consumption than climate. As Dr. Douty says:

"Fresh air is good and desirable in every disease; but fresh air will not cure consumption. You cannot get fat on fresh air. Overfeeding is the secret of the success of Nordrach—overfeeding, combined with the excellent judgment shown by Dr. Walther in

the constant supervision of his patients, and the careful gradation of their daily exercise, whereby the heart is kept strong and healthy, and is able to maintain a brisk circulation through the somewhat obstructed channels of the pulmonary vessels, and the dropsical condition of the lungs induced by too much of the recumbent position in the *Liegehalle* of sanatoria is avoided. Thus not only the lungs, but all the organs, including the heart and all other muscles, are brought into the condition of a gently but well-trained athlete, and the patients are ready to return to their work, if not absolutely cured, at any rate in such good condition that they can continue to be useful members of society, and if they have the sense to continue the high-feeding and careful exercise can eventually live down their lung lesion and lose it. In too many cases it is a weakened heart that prevents their doing so. I believe that the same excellent principles of treatment, carried out in a totally different climate, will give even better results than those of Nordrach, though they are, I believe, the best yet produced; *but they are produced by the system of treatment in spite of and not because of the climate.* Hundreds of cases have been cured at Davos without any rational system of treatment whatever."

There is good reason to believe, therefore, that even in countries where the winter climate is severe, as in Canada, curative results can be obtained in the treatment of consumption. For instance, the following report from the Gravenhurst Sanatorium is encouraging.

MEDICAL REPORT FOR THE YEAR ENDING SEPTEMBER 30TH, 1898.

Number of patients treated during the year.....	116
"    at Sanatorium still under treatment.....	33
"    to be reported on.....	83
Of these 83 patients there were	
Discharged apparently cured.....	12
"    with disease arrested.....	33
"    with marked improvement.....	29
"    unimproved.....	11
"    failed.....	8

Of the 83 patients 64 gained in weight an average of 11½ pounds. Average stay of each patient 98 days.

The altitude of the Gravenhurst Sanatorium is only about 850 feet above sea level. In British Columbia, however, residence can be obtained at stations having a suitable elevation above the sea, and, when climatic advantages such as they possess are made to cooperate with overfeeding, regulated exercise, and medical supervision, the curative results to be looked for in Canadian sanatoria ought to be of the most satisfactory character.

An important feature in the prevention of consumption is the isolation of cases of the disease in sanatoria, thereby removing a considerable source of peril from healthy people, who meet them in all the vocations of life, and more particularly their families, who live in the same homes with them. The number of cases of tuberculosis in Ontario is, however, so large (probably 10,000, there

having been 3,154 deaths in this province in 1897) that the housing of all the cases in sanatoria, even if they were all willing to go to these resorts, cannot be realized. Disinfection of sputa, cleaning and disinfection of rooms occupied by phthisical cases, are, however, better understood and more thoroughly performed than they were a few years ago; and intelligent people find it necessary to practise these sanitary methods in order to protect themselves when their phthisical friends are housed with them. The proposal to make phthisis a notifiable disease has been received with indifference by some sanitarians and with positive objections by others. Some of the arguments used by the latter would indicate a misconception of the real object and scope of notification in phthisis. Neither placarding nor quarantine are required in phthisis, although antagonists of notification have imagined that they should be employed in that disease as well as in diphtheria. Such a view is quite erroneous. As Landouzy, of Paris, says: "It is not the consumptive's body, nor his breath, nor his perspiration, nor the air of the room he inhabits which is harmful; the danger resides in the expectoration. After the departure or death of a consumptive patient, the contagion of the disease remains and survives, since his expectoration, which may have fallen in some corner of the room he occupied, dries up, mingles with the dust, and the bacilli contained in it are ready when a favorable opportunity and a suitable culture ground are provided to renew the process of tubercularization in some other person. The use of spittoons should be enforced in the treatment of all cases of phthisis, and further, spittoons made of some combustible material should be provided in all places private and public, and the people, young and old, should be taught to use them."

I do not think that a tubercular patient, whose sputa are disinfected, whose person and clothing are kept clean, and whose room is tidy, well ventilated, and exposed to sunlight, is a source of contagion to his neighbors. In such a case quarantine is not necessary, and to place a placard on the door would be foolish. I support notification in phthisis because it is the first and necessary step to obtain accurate knowledge of the phthisical infective centres in a municipality. A physician attending a case of phthisis should provide for the prevention of contagion, and should consider the interest of the other members of the patient's family. If physicians practised prevention in cases of consumption as carefully as they do in cases of small-pox and diphtheria, the proximate and distant results of their efforts would lessen the mortality from consumption more than the best conceived medical treatment. If people are careless or imprudent in dealing with tubercular cases, it is largely due to the fact that they have not been fully instructed. Such instruction should be given by physicians, who would then be exercising one of the noblest functions of their office—that of guardians of the public health.

It may be opportune to remind you, at this point, that the

danger of inoculation with dust from rooms that have been occupied by consumptives may be obviated if the windows are regularly opened. The antiseptic properties of fresh air are very great, and if consumptives are taught to open the windows they will help themselves and lessen the danger of infecting healthy people with their disease. Probably the best way of disinfecting apartments is by exposing them to the sun, after a thorough cleaning; but where this method is impracticable formaldehyde gas disinfection or some similar method may be used. It is my pleasing duty to observe that Dr. Hutchinson, Medical Health Officer for London, has referred in his last report to the duties and responsibilities resting on citizens and municipalities in opposing the spread of consumption. His advice is timely, and if his recommendations are put into practice there will be a considerable decrease in the prevalence of consumption in this city. As Dr. Hutchinson says, "In London during 1897, out of 472 deaths 99 were from consumption, and 54 from diphtheria, scarlet fever and typhoid fever, so that about twice as many died in this city from consumption as from all other infectious diseases. Two deaths in every nine were from consumption."

There are several different opinions as to the money value of a human life. The State Legislature of Illinois places it at \$5,000. Assuming that a valuation of \$1,000 is correct, the loss of 99 lives per annum from consumption in this city means a direct money loss of \$99,000, and an indirect loss of a very large sum besides. The financial method of appreciating the value of sanitary methods and legislation naturally appeals to every intellect, and moreover, places the loss resulting from preventable diseases in a peculiarly effective way. That all must die at some time is a truism; but statistics show that, with proper precautions, the evil day may be delayed. Lives now sacrificed to contagious disease might be preserved, if not to the scriptural "threescore and ten years," at least for many years of useful and productive activity. In 1896, in a report to the Provincial Board of Health on the hygiene of the Canadian railways, I referred at considerable length to the upholstering of seats in railway carriages, and also to the current methods of cleaning floors, seats, etc., in carriages. Preference was expressed for seats trimmed with leather instead of the ordinary well-stuffed seat covered with plush, because plush is retentive of dust, and the dust of railway carriages is rich in bacteria. Quotations were made from a report of bacteriological work done in Germany by Drs. Petri, Kolb and Freidrich, who examined specimens of dust taken from railway carriages, and found numerous pathogenic bacteria. In nearly half the cases there was obvious evidence that the passengers had expectorated on the floors of the carriages, and the presence of the Koch bacillus was proved. In fourth-class carriages, which were unclean and rarely washed, the number of bacteria in dust swept up from one square metre of the floor surface was estimated at 12,624; in the

third-class, 5,481; and the first-class, 2,533. On the seats and partitions there were fewer bacteria, from 2,646 to 29: and the ceiling was almost free. It was quite evident, therefore, that to keep the floors, seats, and partitions of a railway carriage clean is to practically ensure its freedom from pathogenic germs, which gravitate with the dust toward the floor of the carriage. Now leather-trimmed seats can be washed with hot water and soap, and then wiped with a sterilized cloth, thus ensuring the disappearance of bacteria. Such seats are, therefore, superior for sanitary reasons to seats trimmed with plush, which have to be cleaned by compressed air or by brushing. For similar reasons the uncarpeted floors of carriages which are washed with hot water and soap and then wiped with a sterilized cloth are also freed from bacteria, and consequently that method of cleaning floors is superior to sweeping. On account of its impermeability and the ease with which it can be cleaned, linoleum was recommended in my report as a floor covering for carriages and sleeping cars instead of carpet.

Owing to the large window space in railway carriages and the free penetration of sunlight into them, together with the entrance and exit of air, the destruction of the germs of disease takes place to a great extent; but as the number of consumptive persons who travel by rail is considerable, the routine disinfection of day and sleeping carriages by formaldehyde should be regularly practised. A law making the use of *compartment* carriages by such persons obligatory would remove a source of peril from the general public, and make the work of disinfection more easy and economical for the railway company.

As the cubic space in a fully-occupied railway carriage, viz., sixty cubic feet *per capita*, is small, its ventilation by any method cannot be made satisfactory. Methods of cleaning, such as have been described, will, however, remove filth and the germs of disease, while the regular opening up of the clear-story windows will assist in the escape of impure and rebreathed air.

While British statistics show that the phthisis rate in adult life has steadily decreased *pro rata* with sanitary improvements, the number of deaths among young children from tabes mesenterica has increased as steadily, and that, too, proportionately with the amount of milk consumed, particularly infants' milk. Thus tabes mesenterica shows a diminution of 8.1 per cent. for all ages, but a large increase (21 per cent.) in the case of infants under one year of age; and these statistics are only to be explained by the great and wide-spread danger arising from tuberculosis-infected milk. It is calculated that 25 per cent. of the milch cows of Great Britain are tuberculous; and it is clear that preventive measures as to milk ought to be tried in that country.

The tuberculin test and the regular inspection of dairy cattle are also called for in this country, and for the same reasons. Dairy herds in Canada have no better claims to immunity than the herds of Great Britain; and the first step to remove suspicion from the

minds of the Canadian public with regard to the purity of the milk supply is to prove that all the dairy cattle are free from tuberculosis. It should also be shown that the animals are kept in clean, well-lighted, well-aired stables; that the supply of water is abundant and of good quality; that their food is ample and of good quality; that the utensils of the dairy are in good order; and that the methods of handling the milk, from the act of milking itself until the output passes into the possession of the purchaser, are of the most hygienic character. In obtaining such a report as to the purity of a milk supply a Board of Health is acting distinctly within its right; nay, more, it is its duty to protect the infants of the municipality against poor milk. Every Board of Health in carrying into effect a by-law to secure good milk ought to have the co-operation of all dairymen.

Unfortunately, instead of assisting such a good cause dairymen are sometimes a stumbling-block, fearing that inspection may lead to loss and infringement of their rights. The rights of a dairyman are to sell a good quality of milk at a fair price, and the rights of the Local Board of Health are to be satisfied that the output of his dairy is pure. A dairyman should invite and encourage municipal inspection, if for no other reason, because the demand for dairy milk will increase when its purity is assured. Under present conditions manufacturers of condensed milk, malted milk, and other infant foods are competing with the dairymen, and a good deal of money is paid for patent foods which, if people were satisfied of the purity of dairy milk, would naturally find its way into the farmers' pockets. In presenting this side of an important question it is to be hoped that a word to the dairymen will be sufficient for them, and that they will not be slow in taking the means to secure the confidence of the people.

It must not be concluded, however, that if lives are saved which formerly would have been allowed to perish by consumption, if mortality in child-life is diminished by isolation and disinfection, the saved lives are destined to reach old age. English vital statistics show that the number of individuals living to thirty-five years has increased, that of those living from thirty-five to forty-five years the number is stationary, and that there is a diminution in the number of persons living from forty-five to seventy-five years. In other words, if young people in England have a greater chance to reach forty years of age, those who survive to forty or sixty years of age are more in danger of death than their parents were at the same age fifty years ago. Two hypotheses may explain this fact, the vitality of the race has diminished, or the conditions of existence in adult life are more defective than formerly. Dr. William Butler, who discusses this question in an article published in *Public Health*, thinks it is principally the first factor which must be blamed. Turning to a second branch of the subject, he establishes a series of tables on mortality by groups of diseases occurring during the same period, and from the reading of these

statistics the conclusion is drawn that if deaths from consumption and zymotic diseases have become less in England the gain has been balanced by an increase in deaths attributed to diseases of the circulatory system, the nervous system and cancer. That there is a close relationship between tuberculosis and diseases of the nervous system is a view which has already been sustained by several observers, among others Dr. Stevens, of New York, who wrote in 1897 that affections of the nerves and disorders of the senses—principally alterations of vision—are transmitted by tubercular ancestors. A child is not more tuberculizable than other children simply on account of the blemish in its ancestry, but is a candidate for all the neuropathic disorders and myopia. The undoubted increase of myopia on the one hand and insanity on the other—the number of patients in lunatic asylums having doubled during the past fifty years in England—are closely connected with the diminished mortality in youth and also the diminution of cases of pulmonary consumption.

With the development of sanitation in our municipalities the conviction must grow that special and accurate knowledge of the science and art of hygiene should be possessed by medical officers of health. So far no organized effort has been made to train sanitary officers, unless we accept the lectures and instructions given by professors of hygiene in our medical colleges. In the June number of the *Sanitarian* I noticed that the Council of New York University has set apart buildings near First Avenue, between Twenty-fifth and Twenty-sixth Streets, for the use of a "School of Public Health," as provided by the law passed at the recent session of the New York State Legislature, and for which \$25,000 was appropriated for maintenance for the year beginning October 1st, 1899. It is proposed to promote public sanitation in various ways, especially to instruct properly accredited medical men and lay sanitary officers throughout the State in methods and appliances for the prevention of disease. The public will be instructed in sanitary matters by university extension work. It is expected that a hygienic museum will be established for all forms of sanitary appliances, and models in plumbing, ventilation, disinfection, heating, clothing, and other kindred subjects, to be open to the public.

In thus drawing your attention to what has been done by our neighbors, I earnestly hope that you, and all citizens who feel interested in a similar enterprise, will bring it to the notice of your representatives in the Ontario Legislature, and will urge the Government of this province to make an appropriation for the use of a "School of Public Health" in Ontario. The second portion of the progress of sanitary education could be carried into effect, even if a school were not immediately established. Already the public are instructed in science and philosophy by university extension work, and the delivery of lectures on sanitary matters during the winter season would easily fit in with and become a useful part of such a programme of university studies.

A notion, calculated to do a great deal of harm, has long been disseminated by persons who are unwilling to admit the protective power of vaccination, and who try to explain the relative scarcity of small-pox in civilized communities by any theory except the right one. They contend that small-pox depends on filthy local conditions, that it is a disease of the poor and communities who neglect sanitary measures. Dr. Tebb, who has recently published a work, entitled "A Century of Vaccination and What it Teaches," supports this view, quite forgetful of the fact that in the seventeenth and eighteenth centuries small-pox attacked the high as well as the humble. In the family of William III. of England, his Queen, his father, his mother, his uncle and two cousins, children of James I., all died of small-pox, and the king himself barely escaped with his life. During the eighteenth century one Emperor and two Empresses of Austria, six archdukes and arch-duchesses, an Elector of Saxony, an Elector of Bohemia, a Dauphin and a King of France, a King of Sweden, and a Czar of Russia were all numbered among the victims. Surely all these distinguished persons could not be consistently classed among people who suffered from the prevailing ignorance and neglect of sanitary measures. Then again, to show that it was an omnipresent plague in England, when Jenner began his experiments, Gilbert Blane estimated that "an adult person who had not had small-pox was scarcely met with or heard of in the United Kingdom." When servants were advertised for it was common to specify "they must have had small-pox in the natural way." In 1688, in an advertisement for a counterfeiter, it was noted as a means of his identification that he was "without pock-holes." At the Institution for the Indigent Blind two-thirds of the applicants were made blind by small-pox. Thanks to the genius and bold experimentation of the immortal Jenner, small-pox has been controlled to an extraordinary extent by vaccination. In some countries it is so rare that in the opinion of German authors "it is no longer observed in civilized countries, and may soon be considered an infection which will possess a purely historic interest." So far this happy desideratum cannot be recorded of the United States, in which over 3,000 cases of small-pox occurred during the past year. In the Province of Quebec no considerable epidemic has arisen since 1885. Since that memorable year, when the Province of Ontario was visited by the scourge, only trifling outbreaks have occurred among us. At present there are no cases of small-pox in Ontario.

Immunity to small-pox can be procured by having the disease itself or by reliable vaccination—a statement the truth of which few will be prepared to deny. That many parents and guardians in Ontario, while persuaded of its truth, have yet neglected to present infants and young children for vaccination, has probably been due to doubts entertained by them as to the purity of the vaccine lymph in general use. The existence of a similar feeling has been noticed in England. On the occasion of a recent

gathering in London the President of the Local Government Board made an interesting announcement relative to the effect of the new Vaccination Act. He quoted from a report sent him by the head of his medical department, who said: "The inspectors inform me that there is distinct evidence of a general increase in the amount of vaccination going on, and in a number of cases the actual statistics recorded are highly satisfactory in this respect. In several such instances the increase in the number of certificates of successful vaccination sent in has ranged from 25 per cent. to 100 per cent. The increase was attributed by this gentleman to the system of domiciliary vaccination, and the provision of a better and purer kind of lymph, which has relieved the apprehensions of a great many people who were formerly opposed to vaccination."

The lymph alluded to by the English sanitary authority is, as you know, the new glycerinated calf lymph. The new article can be readily obtained by practitioners in this province, and it is quite likely that in a short time it will be used extensively. Any apprehension which Ontario people may feel as to the purity of the lymph used can, therefore, be promptly relieved, and if the vaccinator will do his work in a clean, aseptic manner, no evil results should follow.

Let us hope, therefore, that, encouraged by Local Boards of Health, vaccinators will do their work carefully and well, and that the public will, without exception, avail themselves of their services, thus hastening the advent of that day when the people of Ontario will be placed in a position of actual immunity to small-pox, which for them would then possess a purely historic interest.

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## ON THE ROLE OF PRIMARY AND SECONDARY OSTEO-PLASTIC SURGERY IN THE TREATMENT OF COMPLICATED OR COMPOUND FRACTURES OF THE EXTREMITIES.\*

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MODERN advances in the sciences have rendered necessary an entire recasting of our methods of dealing with various disorganizations of the bones of whole limbs or their members produced by the effects of violent force.

Very much more circumspection and deliberation are demanded of the surgeon before he proceeds to sacrifice a limb, or any part of it, by amputation, than in former times; improved mechanical expedients, with a widened knowledge of the regenerative properties of bone tissues, have enabled us to hold out hope to spare, and

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to restore, in varying degrees, many a limb, which in the near past was unequivocally condemned to severance from the body; and more, in trying cases, when the extent of mutilation of the soft parts has been considerable, when perchance articulations have been opened, or there has been such extensive shattering of bone that all our energies are concentrated on saving the member regardless of the degree of resulting distortions or deformity, by resorting to subsequent osteoplastic procedures, we may at present very frequently succeed in restoring symmetry, joint action and muscular movement.

CONDITIONS ESSENTIAL FOR SUCCESS IN PRIMARY OSTEOPLASTIC  
PROCEDURE AFTER SERIOUS FRACTURES OF  
THE EXTREMITIES.

I want to make clear what is meant by this paragraph. When a case is brought to us for treatment, where the extent of the mutilation of the limb is great, when there co-exist serious bodily and visceral injuries, the patient in a state of shock, where we have not adequate provision for the proper treatment of the case, have not ample assistance of nurses, and environment is not such as to justify us in proceeding into putting the limb into permanent adjustment, in such cases we are bound to concentrate all our energies on the patient after we have locally dealt with the part—in what way? In the first place by cleansing it; and I mean therapeutical not chemical cleansing, because they are not the same, removing dirt and effecting complete hemostasis, embalming of the limb or pickling of the limb, and then setting it aside until the patient has reacted, when he is in a proper condition for ultimate consecutive measures. There are certain cases, particularly in children—restless children—where, having sustained a fracture of the limb and other injuries, the adjustment of the fracture at the time is impossible. I will illustrate, for example, where one has had a compound fracture of the humerus, and at the same time a fracture of six ribs—the fracture high up, in such a position that to fix it without impeding the respiration, without hampering the lung action, is impossible, and in a case of this kind where the probability or expediency of putting the limb into any kind of mechanical fixture which will immobilize it is clearly out of the question. In a case of this description, where we have a deformity, then we must resort to what is designated as “secondary osteoplasty,” that is, dealing with a deformity which results from the defect of the limb, resulting after primary treatment, that depending on various causes.

1st. The condition of the patient manifestly is first our most serious concern. Is our patient in a state of grave physical shock?

I see physical shock, because one may under-estimate the degree of great collapse which follows various serious crushes of the body, when the senses are unclouded and the unfortunate

patient is sanguine of an early recovery, and, besides, entertains no serious thoughts of approaching death; as this only ceases when the surgeon intimates that the traumatism is extremely grave, and that no time should be lost in adjusting his temporal affairs and preparing for death, let it be remembered that the mental attitude of the patient weighs for nothing in reaching a prognosis with this class.

2nd. Has the patient been greatly exsanguinated?

Great loss of blood is always a very grave element in all extensive mutilating injuries. Our patient is blanched and cold; the pulse thready, tremulous and irregular. Our patient is thirsty; the muscles of the face twitch and the eyes are sunken. We will do well to direct all our energies toward reviving the waning powers of life before anything like a critical examination of the mangled parts is undertaken.

3rd. Is there any evidence of co-existing internal hemorrhage or serious visceral injury?

In many mangling wounds of the limbs from machinery or railroad accidents the nervous system suffers violent shock, the whole body violent concussion, and simultaneous visceral complications are not infrequent. We certainly will not examine minutely into the character of an injured limb while there are signs which point to the grave implication of an organ vital to life.

From the foregoing it is therefore apparent that under all circumstances our first attention must be directed to the individual; he must be made comfortable and composed, and, if ground for hope remain, artificial heat must be utilized and he should be freely stimulated. Full reaction should be established before a thought is entertained of ulterior treatment of the limb.

THE PERIOD WHEN IT IS SAFEST AND MOST EXPEDIENT TO  
CRITICALLY EXAMINE THE PARTS WITH A VIEW OF  
DECIDING ON THE LINE OF TREATMENT.

It has long been my conviction that very much harm has often been inflicted by the premature rough handling of limbs before the effects of shock have passed off. In serious cases our primary efforts should be directed toward first, securing effective and permanent hemostasis; secondly, thoroughly cleansing and covering the parts; and thirdly, placing the limb in a comfortable position. The word "comfortable" is here emphasized, because at this time theories must give way to facts. The limb is in the proper position when a sense of ease is experienced. This follows when the pressure on the nerve trunks is removed and every impediment to the free movement of the blood current is removed. To force one into full ether coma, suffering from a badly-mangled limb, and then make violent and repeated movements of torsion or extension, is to greatly imperil his chances, and is calculated to surely circumvent nature's efforts at restitution. But when the injury is

not one of great magnitude and the patient's general condition is good, we may be permitted more latitude of action and more lengthy manipulation may be permitted, although there is no doubt but in a general way the practice is a bad one of making any protracted examination or commencing any operative procedures of a protracted character at the first examination. We have done quite enough, then, at first dressing when we have controlled hemorrhage, embalmed the limb and comfortably adjusted it.

How long will we wait? If there be no secondary hemorrhage, no fresh exacerbation of pain, and no signs of asphyxiation or gangrene in the limb, we may delay for forty-eight hours or more, with advantage, before we remove the primary dressings. Now, at this stage, we can see where we are, we can accomplish what was impossible at the primary dressing, we can determine the extent of osseous vitality, we can form some estimate of what the future possibilities are for the limb. The time has now arrived when we may determine our course of action, though there is no good ground for haste yet in the adoption of definite therapeutic measures. As processes of repair can commence only on the subsidence of acute inflammatory engorgement, the prospects of effective osteogenesis are enhanced by this course. And, furthermore, our patient, now fully restored from the immediate depressing effects of violence, is better able to support with success further operative measures.

#### SECONDARY OSTEOPLASTY AFTER REPARATIVE PROCESSES ARE COMPLETE.

The above constitute a new, large and growing field for progressive surgery, the scientific foundation of which was laid by the celebrated Ollier, and its practical utilization has been consummated by aggressive investigation in Europe and America. By judicious and skillful osteoplasty it is almost phenomenal to realize what may be accomplished in the way of osteorection and improving and restoring functions in damaged limbs; in restoring animation in parts palsied by nerve inclusion or nerve pressure. Tenotomy alone, or combined with tenotomy or arthrotomy, under proper conditions, its use in enhancing the working value of a limb cannot be overestimated. By the intelligent employment of osteoplasty we may often not only prevent an amputation, but transform a wasted, twisted, ankylosed limb into a useful member, as it has several times been my good fortune to be able to demonstrate.

#### CONDITIONS WHICH LEAD UP TO THE NECESSITY OF SECONDARY OSTEOPLASTY.

It might be supposed at first sight that if a bad fracture, or fracture-dislocation, were properly adjusted and treated immediately after injury, there would be no occasion for any description of consecutive operations, that the time for interference or precise

action was while the tissues were disorganized—the sooner after the accident the better. But such reasoning is fallacious, as every experienced surgeon well knows.

Many times the question we have to solve is not, can we save the limb with a good prospect of recovery, but can we, by any means within our reach, preserve it in any shape? In very many fractures of various descriptions and under various circumstances no sort of fixed mechanical adjustment is possible, as, for example, when a fracture is multiple there are internal injuries or the vascular channels have suffered serious harm and asphyxia of the limb is impending.

On that point there is some difference of opinion, but I think all surgeons who deal with traumatisms will agree with the celebrated French surgeon who claimed that in all serious fractures the tissues were for some time, twenty-four hours at least, in a state of “torpor,” in a condition of temporary asphyxiation, that there was a complete stasis of circulation in the parts, that the limb, as it were, has not felt the influences of reaction; that there has been no histological changes of the minute anatomical tissues, and hence the reason that there is no object in forcing equalization of permanent adjustment immediately after the injury.

#### OPEN AND CLOSED FRACTURES; OR THE COMPLICATED SIMPLE OR COMPOUND FRACTURE.

My own investigations and experiments on induced fractures in the limbs of frogs, as well as clinical observations on mutilated limbs, have convinced me that incomplete vascular stasis of the distal end of a mangled limb is entirely compatible with its ulterior vitality, provided only that the damage to the great blood trunks has not been too great. But how can we calculate the extent of vascular damage, or what shall be our guiding principle of action if we are assured of its existence in this class of cases?

There are no means by which an estimate of vascular damage can be primarily determined, and often it is several days before the full vascular tide has begun to move. Our guiding principle, then, must be not to strangle or paralyze the already crippled circulation. No sort or description of splint or constricting bandage should be adjusted until the circulation has been fully rehabilitated.

It therefore follows that, inasmuch as accurate mechanical adjustment is not possible or expedient here, faulty, defective, distorted limbs or non-union may follow. We may also have hyperostosis or osseous fusion of continuous symmetrical shafts and other accidents.

This, then, would constitute the second class, *i.e.*, those cases of compound fractures in which it is obvious enough at the primary dressing that osteoplasty is called for, but for various local and constitutional circumstances beyond our control, it is deemed

advisable and sometimes imperative that we delay until the work of union is advanced or completed.

Complicated simple fracture or fracture-dislocation is not infrequently followed by such a degree of deformity or loss of function as to seriously interfere with the future use of the limb.

This is notably the case in various types of Pott's or Colles' fracture, fractures through the humerus, its shaft or proximal distal ends, intracapsular fracture at the hip-joint, fracture of the patella, etc. In many of these cases belonging to the above class osteoplastic surgery may be frequently utilized as a secondary or consecutive procedure; rarely immediately after injury except in suturing of the patella.

The tendency of most fractured bones is to resume their normal position after replacement, provided muscular tension can be effectively overcome, when satisfactory results follow; but in various situations, especially when joints are involved and the apophyses are broken off, complete replacement and support at primary adjustments may be impossible, or if effective then, the fragments may later move out of position and require operative treatment.

#### MAKING A SIMPLE FRACTURE COMPOUND FOR DIAGNOSIS OR TREATMENT.—IS IT EVER JUSTIFIABLE?

It has long been taught that compound fractures require about twice as long a period of time to unite as simple fractures, and besides that this type was always a much more serious affair than in those breaks of bone over which the integument remained whole. Until McEwen had demonstrated the safe and simple osteoplastic method of speedily overcoming deformed and distorted bone shafts, surgeons were about as chary of cutting into healthy bone shafts as they formerly had been about opening the cavity of the peritoneum. They had the horror of making a simple fracture compound, and when a considerable deformity followed a severe, simple or compound fracture they were usually contented to leave it undisturbed; or, if the deformity was considerable, with the joints locked, they amputated the limb. No one should ever lightly undertake an osteotomy after fracture; but when the condition is such as will inevitably be succeeded by marked deformity of the limb with serious impediment in function, we should never hesitate to open freely down over the seat of osseous disorganization and deal with the case as existing conditions require; provided, always, that the most vigorous asepsis is enjoined and we have a proper appreciation of the difficult task before us.

It is certainly a mistake to assume that all compound fractures are more protracted in uniting than all so-called simple fractures. Many simple fractures near articulations may be treated without splinting or compression of the vessels, uniting by primary unions. Heretofore, when an avenue for infection was maintained by what

was known as "drainage," and when the fragments were kept in the vise-like grip of rigid, unyielding adjustments, and thereby the vascular system nearly palsied, surely enough tardy or imperfect union was the rule.

Compound fracture wounds were formerly quite invariably drained.

Prophylactic drainage had indeed been regarded as a surgical dogma in open fractures, as in open wounds of nearly every description, whether they involved cavities or not. But we have now been convinced that indiscriminate drainage is a bad practice, and that in an aseptic or a recent wound, in healthy tissues, "drainage" is worse than useless.

It therefore follows that in recent compound fractures not attended with extensive laceration or contusion of the soft parts and an absence of shattering of bone, the overlying tissues may be closed in, with or without suture, and prompt primary union may follow of the fleshy and bony tissues.

Incision through the overlying tissues for purposes of diagnosis in fractures is certainly not justifiable, except in those involving the skull. By the use of the X-ray and other expedients a therapeutic diagnosis is practicable in all fractures.

Free incision, therefore, in many fractures is permissible for purposes of treatment—osteoplasty, for diagnosis only, never, except in skull fractures.

#### THE SCOPE OF SECONDARY OSTEOPLASTY IN DEFECTIVE JOINTS OR DEFORMED LIMBS AFTER FRACTURE.

Secondary osteoplasty, judiciously utilized, will often yield remarkable results, and may be regarded as one of its most salutary achievements in traumatic surgery. It deals with bones after their fragments have united, when the nerves are caught or compressed; in a hyperostosis, when the shafts are greatly deflected—in fact, when the limb is crooked and deformed—when a joint has been involved and its motions are either greatly impeded or entirely lost. It is an invaluable resource in the pseudarthroses. With the joints its great fort is at the hip, the shoulder, or, above all, at the elbow. Stimpson has utilized it with advantage after union and deformity at the ankle in Pott's fracture.

Secondary osteoplasty, however, may be employed with great latitude on the bony shafts of the extremities; with the greatest advantage on the leg. The sooner after union and the younger the patient the better. It is almost marvellous what we may accomplish by osteoplasty in the bones of growing children, as was recently demonstrated by Heuter (*Wiener klinische Rundschau*, März 12th, 1899). In a fracture of the humerus (patient five years old) attended with considerable loss of bone and a flail joint, he turned to the skeleton of the thorax and resected ten centimetres of the fifth rib, imbedded it in the hiatus in the arm and

closed the wound. Union was rapid and complete. In nine months the full use of the arm was restored and the rib regenerated. This, indeed, would seem the climax of homologous osteoplasty, and suggests what is expected of the surgeon in our times in the management of serious fractures.

It is not recommended that recourse be had to this means in cases of moderate deformity of a limb, with but slight impediment in function. But there is quite a large margin of cases where stiff and useless joints, with bowed bone shafts or useless limbs, follow union, wherein osteoplasty will sometimes accomplish extraordinary results. By it the muscles are liberated, and with the free division of the adhesions in the soft parts pressure on the nerves and blood trunks is removed, and the wasted, painful, paralyzed and useless member recovers its lost vitality. There has been practically a resurrection; the dead or useless has again come to life.

In medico-legal cases, in the future, when serious fracture cases are to be considered, when the future working value of a limb is to be estimated, the question as to whether the full resources of osteoplasty have been exhausted must be answered before it will be possible to make any definite calculation as to what the extent of permanent injury is.

#### OSTEOCLASIS AND OSTEOTOMY WITH OSTEOPLASTY IN ANGULAR DEFORMITY OF THE THIGH WITH SHORTENING, FOLLOWING NEARER LESS PERFECT UNION.

Every surgeon or practitioner having much experience in the treatment of fractures of the femur will occasionally meet with cases of marked angular deformity resulting, after union, with considerable shortening of the limb. It is important to note here that it is not so much non-union which is at fault as imperfect or mal-union. In some of these cases there may be ground for suspecting unskilful treatment, but in the majority of cases the fault is with the patient and is fundamentally constitutional.

We know that fractured bones sometimes play strange freaks: at one time non-union lingering indefinitely, but the limb is massaged, or some internal remedy given, when all at once we note consolidation has set in.

Reclus recently notes how, in a few cases of tardy union, he administered thyroid extract with the most remarkable effect, while in several others it was quite useless. Again, in some cases after a month or more we release the limb from the splints, find the limb in excellent outline, with little or no shortening. There seems to be good union. We allow the patient to go about on crutches, later with a cane, and finally lose sight of him. But he turns up with a deflected, distorted limb, shortened and crippled. At first sight the aspect of such a case has a most disquieting effect. The patient has had his limb again "measured" and tells us, per-

chance, that we have left him a hopeless cripple. The prospect of having to defend one's self in civil action is not the most agreeable contemplation after such a mishap.

In this class the case only reports late, after the hardening process is advanced, say, from six months to a year, then nothing probably less than a formidable operation will hold out any prospects of overcoming the deformity. But, happily, most of these cases are in rickety subjects, or those in whom the callus softens and yields after the surgeon has discharged the patient, when weight is put on the limb. However, the bowing may occur before the patient has left the bed. In all these cases, immediately after discovery of the deformity, we should insist on osteorection with or without osteotomy. In my experience this deflection of the femur has occurred in children most frequently. It occurs most commonly in fractures near the middle of the femoral shaft. The convexity of the deflection is outward in nearly all cases.

It is interesting to note that in the great majority there is little, if any, over-riding of the fragments, as we know from the fact that after we refracture or press the shaft back into line there is generally no shortening.

When these cases are seen early there is no class of deformities treated with more gratifying effect, with more security and certainty of results. In all these there must be complete osteoclasia, or refracture, as soon as discovered, when the deflection is completely overcome. An adjustment should then be applied, but should be frequently removed in order to bathe and massage the limb and freely move the joints. In some cases refracture of the femur is easy, without dividing the bone, even later than a year. Such a case came under my care some years ago. The patient, a woman of forty years, was injured by a defective highway. She had a complete fracture in the middle third of the left femur, with but very little shortening. The limb was adjusted in gypsum, and after a week she was taken home. About a year after, when the action for damages was tried, her physician came to me and told me there was four and a half inches of shortening, and that walking was impossible. She had then won her suit, with a liberal verdict. Six months after this I was sent for to deal with the deformity. Now, at more than eighteen months after fracture, the femur was readily refractured and pressed into place. In three months union had completed, without any shortening. She at present has perfect use of the limb, without the slightest trace of any defect in locomotion. It is now three years since the deformity was rectified.

Osteotomy, as a preliminary step to osteoclasia, is indispensable when the uniting bond of osseous tissue has undergone hardening and does not yield to the application of moderate force. McEwen has shown us that osteotomy for rickety thighs or legs in children is a procedure quite devoid of danger, and is the most valuable

adjuvant ever placed at the command of surgeons for the correction of deformed limbs.

We should not be slow to take advantage of it in those distortions following union of the diaphyses, when it becomes necessary to cleave or partly divide the bone, though it should be borne in mind that in those cases of aggravated deflection we have to deal with an excessive callous formation, besides highly vascular parts, and, moreover, that in the femur of the adult osteotomy is always a procedure of considerable gravity.

It is wiser, however, when ossification is advanced to resort to it rather than to risk great violence by force, and thereby inflict serious damage to the large blood trunks, the nerves and soft parts. In its performance in the adult its greatest danger may be obviated by effective economy of blood and the most rigorous asepsis.

I have here some charts roughly diagrammatic of some things which will contribute in a measure to demonstrate what I have at home in the shape of drawings, but they are not in proper form to present to our secretary. Now, imagine this to be a case of fracture of the tibia in a child, with a loss of four-fifths of its diaphysis, three fractures of the fibula, the limb so badly fractured that I was sent for to amputate it. I was prepared to take off the limb at the hospital, but could not do so because of something which is very essential from the standpoint of the law, and that was we did not have the consent of the parents. I advised the house surgeon to summon the parents by telegraph at once. The mother arrived and said we might say what we liked, but the limb must not be amputated. We talked of tetanus, secondary hemorrhage, gangrene and all of those things, but the woman was obdurate. The child's father was in the far West, and could not get home for four days. If, on his return, he consented to the amputation, she was satisfied, but she would not allow it to be done until he saw his child. That woman saved that child's limb and many since, because it taught me a lesson I had then to learn. The whole of the diaphysis was gone. It was fractured at about the insertion of the epiphyseal line. The shaft of the fibula was fractured in three places, but you know the fibula is a bone deeply covered with muscles, everywhere except at the head, and you seldom get a compound fracture of it. You will commonly find compound fractures of the tibia, but seldom of the fibula, and when there is a fracture of the fibula there is rarely displacement. We had this whole segment from this line below to the line above (indicating) shelled out as a pea out of a pod—a pretty hopeless-looking state of affairs. After we adjusted the limb we did a little thinking. I noticed that the periosteum was very thick. As you know, in a child the periosteum is very thick and possesses great regenerative powers. To make a long story short, I put the limb in a light dressing, taking care not to hamper the circulation. The extent of recovery was so complete that when the case came up for trial—as the father, a very intelligent German, sued the railroad

company—the lawyer for the company asked the boy to walk up and down before the jury. The lawyer asked the foreman of the jury to say which limb had been injured, and the foreman could not tell. The extent of regeneration was so complete that it was not possible when the boy was walking to determine which limb had been injured. That was a case of a child. Remember, in cases of children, if the circulation is unimpeded, you can do anything with the bones. You cannot say immediately after the injury whether the circulation is unimpeded or not. No living man can say immediately after the injury—it can only be determined twenty-four or forty-eight hours after, when the patient has recovered from shock—whether the circulation is intact, as in the case of a child. If an amputation is made under such circumstances there is ample ground for a civil action.

Here is a case illustrating another factor in an adult, a man about thirty-two years of age, who had a fracture through the tibia, no fracture of the fibula, and who had been suffering from rheumatism in the limb at the time he fell down stairs, fracturing the bone shaft. Brought home and put under treatment. The ends of the bones projected through the tissues, took on a dark color, and emitted a foul-smelling discharge. The doctor who had charge of the case got alarmed, and came to me and said he could not see anything to be done to save the man's life except to take off the limb. It certainly presented an unfavorable aspect when I saw it. There was a section of bone gone. Now, what are you going to do, supposing you had preserved the limb? You are going to have a cushion joint, and you may compensate for that by having an adjustment applied to the leg which would throw the weight of the knee on the ankle, but a nuisance that must be to carry about in the hot weather. Can we hope, by any osteoplastic operation, to fill in that breach where the bone is gone, the bone shattered and detached and shelled out? Some few years ago Prof. Phelps, of New York, employed a heretoplastic operation, remedying such a defect in the limb of a child, by producing a fracture through the leg in the animal, and leaving its vascular attachments in contact and bringing it over and fixing it in this hiatus, with the hope that the elements would fuse and the breach be avoided. The results were unsatisfactory. The parts did not unite. It was a failure. What, then, next? In this case, as I said, the question was, should we amputate? I found the man in good health, a young fellow with good circulation. The ends which projected were black, smoky, sooty-colored fragments, from the effects of the atmosphere on the iron elements in the blood. They had the aspect of being hopelessly necrosed, but of course the mere fact that they were black proved nothing about the parts buried by the tissues. I found there was good circulation and put the limb in a comfortable position. In a few days the congestion passed away, the limb looked well, but the breach was here. My idea was, after having cleansed the parts and gotten up

a healthy action, to go on with the secondary osteoplastic treatment. Here is where the secondary osteoplastic treatment comes in. Where, in the first dressing you cannot take advantage of the osteogenetic process to secure repair, and resort to it as a secondary procedure, and after the patient has recovered a fair share of health. I proceeded to cut off all the detached fragments. I then cut down to the fibula, cutting through the periosteum and taking out a segment of it which was four and three-quarters in length, nearly five inches. That corresponded with the gap. After that I pushed the ends up together and pushed up the leg, filling in the breach and putting in three heavy wire sutures. After taking off a long section like that you might say you have an elongated set of muscles and a flail limb. What is to hold the bones in position? A mechanical appliance is only a temporary expedient, for it has only the properties of an immobilizing agent and you will be pretty sure to have sloughs. But the fact is, if you remove two to four inches within a week the muscles will have shortened. They will have shortened so much that though they hang flabby and make no tension on the parts of all immediately after the injury yet after a week's time the muscles will have so far shortened as to hold the fragments firmly in position. The result in this case is perfect. Osteoplastic procedures often require a great deal of time. This man was down from the 5th of July, was able to get about on crutches the 1st of November, about the 1st of January he could go around with a stick, and after another year he did not require any support, the ankle-joint was perfect, and two years after the accident he walked from One Hundred and Twenty-fifth Street to Coney Island and back, a distance of thirty miles, without crutch or stick of any kind, and has as perfect control of his limbs as any man, compensating for the shortening by a raised sole on his shoe. We have another kind of case involving fracture through the shaft of the tibia, and I cite the tibia because the compound fractures which we see, 95 per cent. of them, are fractures through the tibia, and there is no bone in the body which we can deal with so satisfactorily with osteoplastic procedures as the tibia, and I cite it as an example. We have a fractured tibia here (indicating), with a fracture through the fibula. In this gap between the proximal and distal fragments are pieces of bones. The bones are shattered and some of these pieces can be picked out. There are other pieces which can be drawn out. They have attachments to the muscles and periosteum, and to some of the connective tissue, and they have a vascular connection. In a case of this kind—I have tried it in only one—I picked out the loose fragments which remained, fixed them in the centre, closed in the breach with sutures, and these small fragments that had a vascular connection, being fitted in a breach, ultimately underwent a hyperplastic operation, which in time filled in that hiatus. This is another way in which the result was accomplished. This is a rough illustration of the kind of fractures where you get a sharp angular deformity.

We dismissed the patient all right, but after a few months he turns up and there is an angular deformity of the femur and a shortening of five or six inches. The patient has suffered very seriously from the defect of the limb, and as we cautiously look at a case of that description we are certainly impressed with its serious character; but we must bear in mind, particularly in children, that in most cases deflection comes from the softening of the callus. The bowing of it, fortunately, almost invariably is in an outward direction. It is in a part where there are no important blood vessels or nerves. We can, in many of these cases, restore the length of the limb completely, which is proven by measurement, and we know when we restore the complete measurement there could have originally been no over-riding. In other cases of adults you will find sometimes that as the result of serious injury to a part, at the time of first injury, little can be done in the way of treating a fracture, but yet by secondary osteoplastic procedure you may succeed in giving the patient a good limb. Such a case I had last year, a young man who was a witchman and who had his thigh fractured by an accident on a train. At the same time he sustained grave bodily injuries, so that little could be done with the injury of the thigh at the time of the accident. There was a shortening, something more than a shortening, paralysis of the muscles of the foot, so that he had no sensation in the foot. The muscles of the limb had wasted, and it was a question of taking off this useless limb, that was only in his way, and was the source of pain. He was a young fellow with a great deal of grit, and disliked to entertain the thought of amputation, although it seemed to be the only resort in his case. He was sent to me, and I found a vast mass of callus. I found that the external division of the popliteal nerve was calloused. I separated the nerve from the callus and found the callus was united so firmly that it was a difficult thing to do. I then made a cross-section through the fragments and brought the limb into position, and the young fellow made a good recovery. He did not get perfect union, but the deformity was obliterated and the paralysis recovered from. He is back to his work to-day. That is an illustration of what may be accomplished in what is known as secondary osteoplasty. I saw such a case yesterday at the Soldiers' Home at Hampton. I believe the soldier could be put on his "pins" and be made a useful member of society. In most cases of fractures of the femur we sometimes do not meet with the same success, and a different condition will result; but it is unusual.

This is a case in which the patient was injured on the 70th of March a year ago, in a head-to-head collision, in which he sustained serious bodily injuries, and when he had finally recovered, among other things, the tibia bowed up, the personal group of muscles of the foot was paralyzed and wasted. The limb was of little or no use. In that case, by secondary osteoplasty we were enabled by the refracture of the bone, getting the fragments into

position, to get such a good result that the man could throw the whole weight of his body on one foot and walk about without a cane; no crutch or anything of that kind. He is a locomotive engineer and can go to his work now a sound man.

It struck me, Mr. President, that those who have to deal with injuries so commonly involving the bone shafts, and from the fact that there is so little to be found in our works on surgery dealing with the subject of osteoplasty, that a few notes bearing on the matter would not be lost on this Association.

*(To be completed in next issue.)*

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### AN EXPERIENCE IN FORMALDEHYDE DISINFECTION.\*

BY F. MONTIZAMBERT, M.D. (EDIN.), F.R.C.S., D.C.L.  
 Director-General of Public Health.

ON the evening of Tuesday, June 6th last, the S.S. *Lake Huron* arrived at the quarantine station of Grosse Isle, in the River St. Lawrence below Quebec. She was twenty-five days out from Batoum, on the Black Sea, with 2,300 Doukhobor immigrants on board and a crew of sixty-nine, including the pilot.

Smallpox being found on board, the vessel was ordered into quarantine. Seventeen cases of this disease, eleven of the Doukhobors and six of the crew, were removed to the hospital between the time of the arrival of the vessel and the completion of the landing of the persons and effects they had brought. All the 2,300 passengers were landed by Friday evening, the 9th. The heavy luggage from the hold was landed on Saturday and Sunday. The vessel was disinfected on Monday and Tuesday, the 12th and 13th, and she was offered to her agents for release, with a new crew, on Wednesday, the 16th, at 4 a.m.

The usual methods employed in the Canadian quarantine service for the disinfection of vessels are as follows: Steam for all hospital cabins and other small apartments where it can be used; formaldehyde for saloons, staterooms and small apartments where permanent fittings would be destroyed by steam; sulphur dioxide gas under pressure from the blast furnace for holds and steerages; and mercuric chloride solution for all free surfaces, alleyways, latrines, bilges, etc.

On this occasion the sulphur dioxide blast appliance of the station was not available. Steam is not suitable for large apartments as the temperature cannot be kept up, and the steam is therefore

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\*Read before the Canadian Medical Association, Toronto, August, 1899.

precipitated as simple hot water. Accordingly formaldehyde was used for the holds and steerages on this occasion.

The cubic space involved was as follows :

	Cubic feet.	
Main deck . . .	34,453	} Three compartments open longitudinally.
"    " . . .	13,441	
"    " . . .	26,977	
	74,871	
Forehold . . .	17,534	} Three compartments perpendicularly open by hatchways.
"    " . . .	13,461	
"    " . . .	18,117	
	49,112	
No. 2 hold . . .	17,680	} " "
"    " . . .	15,727	
"    " . . .	22,975	
	56,382	
No. 3 hold . . .	4,657	} " "
"    " . . .	4,264	
"    " . . .	5,920	
	14,841	
No. 4 hold . . .	13,446	} Two compartments perpendicularly open by hatchways.
"    " . . .	19,530	
	32,976	
Afterhold . . .	12,734	} " "
"    " . . .	13,520	
	26,254	
Total measurement . .	254,436	

The formaldehyde was liberated from formalin, the 40 per cent. aqueous solution of the gas. Twelve ounces of the solution were allowed for each 1,000 cubic feet of space. The time of exposure was eight hours. Two instruments were employed in this part of the work.

Although, as stated, the disinfection of the vessel was completed on the morning of Wednesday, June 14th, owing to heavy weather it was not until Friday, the 16th, that the new crew could be sent down to receive and take away the vessel. During this interval an "anchor watch" was kept on the vessel's deck and in her engine-room, the officers and crew continuing to live on shore. When the small steamboat bringing the new crew came in sight, the last of the old crew were brought ashore, and the *Lake Huron* was left riding at anchor in the offing without any one on board. The new crew that then boarded her and took her away were from a sister ship, the *Lake Superior*, then at Quebec. After taking the *Lake Huron* up to that port they had to leave her within a day or two to rejoin their own vessel. They were at once replaced on the *Lake Huron* by another, a third crew.

Thus two new sets of men boarded, occupied, lived and slept in this vessel within from two to four days following her disinfection, after there had just been removed from her seventeen cases of smallpox scattered among nearly 2,400 people packed on board,

and having occurred both in the steerage and in the forecastles. This constituted, of course, a much more severe test of this method of disinfection than the re-embarking of the original crew would have done.

I am happy to be able to state that there has not been reported any subsequent case of this disease in connection with any of these persons, or traceable in any way to this vessel, during the two months and a half that have now elapsed since these events occurred.

I am aware that this disinfectant, formaldehyde, has been employed before for the purification of vessels, notably some of the United States transports after recent service at Cuba. But I have not seen any instance recorded of its use on so large a scale in the face of actual infection with smallpox. Nor do I know of its results being put to so crucial a test as upon this occasion.

In my opinion the use of sulphur dioxide driven in from the sulphur furnace under the strong pressure of the exhaust fan must remain our chief reliance for large apartments, such as holds and steerages; but still this instance of the successful employment of formaldehyde as an alternative is not without its value. I do not forget how careful we have to be not to hastily draw conclusions from any one case or occurrence. Still it is only by the noting of single cases that cumulative evidence can be obtained, and I have therefore thought this test of formaldehyde disinfection on a somewhat extensive scale to be of sufficient interest for me to bring it before this Association.

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### SYSTEMATIC INTRA-UTERINE EXPLORATION AFTER EXPULSION OF PLACENTA.

BY JOHN HUNTER, M.D., TORONTO.

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IN no other sphere, unless it be in the ecclesiastical one, are the "traditions of the fathers" more reverently or superstitiously followed than in some phases of obstetric teaching and practice. If, at any of our medical associations, one should attempt to promulgate a reform in some of the old effete methods in vogue for centuries, in order to bring them in line with modern systems of procedure, in surgery and gynecology, he immediately confronts the sternest opposition. One after another of his colleagues rises, with a decorum commensurate with the gravity of his purpose, a visage surcharged with indignation, and with solemn words, indicative of the unfathomable cerebral depths in which the roots of his convictions are imbedded, he rehearses his unflinching faith in the old traditions, utters his protest against the innovations, and hurls his anathemas at all such unsanctified teachers and teachings.

We witness these scenes with some surprise and amusement, and could well afford to wait until time had consigned these traditions to the same limbo as witchcraft and kindred delusions, were it not for the fact that the perennial reiteration of them retards the progress of obstetric art. Why should obstetrics—any more than surgery or gynecology—on the threshold of the twentieth century, be hampered by the unscientific theories and teachings of bygone ages, although some of these had the endorsement of the most illustrious names that adorn medical literature? These great ones made the best use of the opportunities of their time. Why should we not follow their example, in this respect, rather than their teachings? Of course, it does not follow that in order to introduce much-needed reforms we are to throw overboard the wise conservatism reared on clinical experience, the safest and firmest of all foundations. Because one man with a large experience and good technique can do certain things with impunity, is no excuse for the rank and file following blindly after his methods. A Blondin may find a tight-rope quite a safe means of transportation across a Niagara River, but a foot-bridge is a much more suitable pathway for the crowd.

The question of a systematic exploration of the uterine cavity, after the expulsion of the placenta, in every case of labor, may be discussed from two standpoints: 1. Its Necessity 2. Its Safety.

It is necessary in every case, for no matter how carefully we may examine the expelled membranes, we cannot be sure that no fragments have been left. Two quite recent cases fully convinced me of the truth of the statement just made. In each case an experienced nurse and I, at the special request of the patient, made a most thorough inspection of the placenta. We assured the first that the after-birth was entirely away. At my next visit I was confronted with a fragment on a napkin. The second lady insisted on having an examination made, although positively assured that all was away. The finger captured quite a piece, but for prudential reasons the patient was not made aware of it.

The retained fragment, be its size what it may, is now a piece of disintegrating dead tissue, and, as such, a menace to life. It may be said that nature will take care of these fragments without our meddling. Such an excuse is only a sin of presumption. No obstetrician, in the light of the present day, would be justified in leaving any fragment that could be easily and safely removed. Do we not feel uneasy when, with cases of abortion or adherent placenta, we are obliged to leave some portion behind. Visions of sepsis haunt us for days. A dozen similar excuses to the above may be formulated, *i.e.*, fragments remain aseptic, become attached to uterine wall; or, there are difficulties in making the exploration, probabilities of all the debris not being removed even then, etc. In regard to the former, they are only variations of the same sin of presumption; and as to the latter, they are simply the limitations incident to all operative work. What progress would

surgeons or gynecologists make if they allowed themselves to be deterred by the possibility of having to contend with difficulties in operating, or by having to endure regrets for undesirable results. Why, then, should the obstetrician be discomfited by difficulties that only nerve his confreres to acquire greater skill and a more efficient technique? There is no room in obstetric practice for the unclean, unprogressive, unscientific, timorous or superstitious. The imperative call is for clean, intelligent, practical, scientific, aggressive work.

*Its Safety.*—The devotees of "the traditions" are so entrenched on this kopje that it is almost impossible to hit them with the lyddite shells of criticism. They can only be dislodged by the thrusts of steel-cold facts. It is said that to systematically make a *post-partum*, intra-uterine exploration in every case of labor would be a very unsafe practice to follow. It must be frankly conceded that there may be about this, as in every operative procedure, especially on the intra-abdominal or intra-pelvic organs, an element of danger. But let us be consistent. Why wave the danger signal so frantically at this procedure, when we not only shut our eyes, but actually practise and endorse far more dangerous performances in the early stages of labor? Take, for instance, the primary digital examination. The accoucheur comes in, perfunctorily washes his hands, passes one or two fingers up, more or less forcibly, through the cervix, and sweeps them round and round the head. If there be infection on the fingers, could ingenuity devise a better method for having it effectually implanted well within the uterine cavity? He then estimates the progress of the labor, and goes off, perchance to lance an abscess or dress an infectious wound, returns and repeats the examination time and again. In the meantime the fetal head is lacerating the soft tissues, and opening new avenues for infection, and the attrition of the head against the uterine walls rubbing in the infection very thoroughly. This process may go on for hours. Compare these conditions with those surrounding a *post-partum* examination. Granted, that we have in the latter equally favorable conditions for infection; but what are the probabilities of its getting there? The accoucheur has been with his patient for some time, his hands have been washed frequently, the fingers are introduced gently, swept quickly around, and removed as the uterus is contracting. In the first stages of labor, the pressure of the fingers, the ever-widening fissures, the attrition of the fetal head, all alike contribute to absorption of any infection, whereas in the *post-partum* period there is a process of contraction, exfoliation, extrusion and expulsion going on. The gush of blood that follows the withdrawal of the fingers, and the outflow of the lochia tend to carry away any infectious material, so that, from the standpoint of safety, the *post-partum* examination or exploration is virgin innocence compared with the strumpet-like procedures carried on in the first stage of labor.

In conclusion we may briefly compare the two procedures as to the necessity for either of them. I think clinical experience fully confirms the statement that there is a far greater probability of finding harmful debris in the ex-gravid uterus than of finding mal-positions of the fetal head, or other abnormalities in the gravid uterus; in fact, we so rarely meet these latter conditions that the discovery of them rather surprises us. They are probably not found in more than four or five per cent. of all our cases, so that practically, we know that in ninety-five or ninety-six per cent. our only excuse for making an examination is merely for information regarding the progress that is being made. Now, if this procedure be justifiable for the purpose just mentioned, is it not a hundred-fold more so when in the ex-gravid uterus we expect the exploration to be of great service in removing waste products that might easily become inimical to health, or even life?

I have only touched the fringe of this question, or in military parlance, a scout has taken a snap-shot that may precipitate a battle. Well, if war be ever justifiable, it would surely be between the vitalizing optimism, that hopes for clean, intelligent, practical, scientific, aggressive work in obstetrical art, and the palsied pessimism that is famishing on the traditions and teachings of mediæval ages.

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**Is the Sealskin Sacque Unhealthy?**—And now it is the sealskin sacque's turn to come under the ban! A New York doctor says he verily believes that more deaths have been caused in New York from sealskin coats than from smallpox. The owners feel so proud of their possessions that they often even wear the coats indoors. The same doctor says that silk underclothes are an abomination. They are too closely woven, says he. Wool is the only proper wear. The married men of the world should promote a testimonial to this medical gentleman, who is known in New York as Professor Thomas Jefferson Harris of the Post-Graduate Hospital.

**A Great Honor, but only Deserved.**—It is not often that royalty honor manufacturing pharmacists by a visit to their factory. Such renown, however, recently fell to the lot of E. Merck, the well-known drug manufacturer at Darmstadt, Germany. Her Majesty's grandson, the Grand Duke of Hesse, showed his interest in the chemical industry of his country by spending the better part of two days examining closely into the varied processes of manufacture of refined drugs at the establishment of Merck & Co. The Grand Duke was accompanied at the time of his visit by the Grand Duchess of Hesse, the Duchess of Cobourg, the Grand Duchess Helena of Russia and Princess Beatrice of Cobourg. The party visited not only the works, but went all through the-warehouses and suites of offices.

# Pathology.

IN CHARGE OF . . .

W. H. PEPLER, M.D., C.M., AND  
J. J. MACKENZIE, B.A., M.B.

## ON THE SIGNIFICANCE OF MIXED INFECTION IN PHTHISIS.\*

(Abstract.)

THIS paper, 174 pages in length, is one of the most complete which has yet appeared on this subject. It contains the result of histological and bacteriological studies of twenty-six selected cases of phthisis, with clinical histories of the majority and with a very full discussion of the literature of the subject. The chief results of the investigation are summarized as follows:

1. The bacteria which appear in the lungs with the tubercle bacillus, in the course of tuberculosis, settle first in the contents of cavities, then in the walls of cavities, and can, as a result, produce by their toxins, an effect upon the surrounding tissues or eventually upon the whole organism. They may lead to the destruction of the cavity wall and produce a pneumonia in the neighborhood, either alone or in combination with the tubercle bacillus, in the course of which also a toxemia or bacteriemia may appear. Further, they cause by aspiration into healthy lung tissue broncho-pneumonias, which either heal up or lead to destruction of lung tissue and eventually also to toxemia or bacteriemia.

2. The mixed infection appears, pathologico-anatomically, chiefly in the form of a pneumonia, which arises from the combined action of the tubercle bacillus and other forms, and shows a focal, lobular or lobar character, and there may be demonstrated in the inflamed lung tissue, either with or without tubercle bacilli, numerous bacteria, especially streptococci, staphylococci and pneumococci.

3. The mixed infection plays a great role in the phthisical process, not only in its clinical course, but it also influences the pathological findings in the lung tissue.

4. The certain demonstration of the mixed infection is possible only by histological investigation, especially by the evidence that the foreign micro-organisms are found in larger numbers on and in the cavity walls, and also that they are taking part in the origin of the pneumonic changes in the neighborhood of the cavities, and that secondary broncho-pneumonic foci, arising from the aspiration of cavity contents, contain in the first stages of their formation, either with or without tubercle bacilli, other bacteria in such

\* Sata (3rd Supplement to Ziegler's *Beiträge*).

numbers and with such distribution that pathogenic significance must be ascribed to them.

5. Sputum investigation and the cultivation of bacteria from the lungs *post mortem* alone give no safe evidence of the existence of a mixed infection.

6. Mixed infections arise mostly after the beginning of the degeneration of the purely tuberculous tissue, and may appear after a longer presence of this degeneration.

7. Only in closed cavities do the contents remain for a longer time free from foreign bacteria. Mostly, immediately after communication of a cavity with the outer air, it is sown with foreign organisms, but mixed infection does not yet begin, but only when the bacteria penetrate the wall, lead to degeneration of the same, and produce pneumonic changes in the neighborhood, or when by aspiration they pass to distant portions producing there the so-called mixed pneumonia.

8. What we call phthisis is usually only in its first stage a pure tuberculosis and apparently not in all cases, even in the first stage. Pure tuberculosis which proceeds but slowly or may remain a long time dormant and may be discovered accidentally at autopsy, can neither from its clinical course nor from its anatomical character be designated phthisis, yet there occur advanced tuberculous changes of the lungs with limited pneumonic exudation in the neighborhood of the caseous, fibrous, tuberculous foci in which a mixed infection cannot be demonstrated. Whether in such cases a mixed infection never existed, whether the secondary infection was healed and only the tuberculosis remained cannot be decided anatomically.

9. The majority of cases of advanced phthisis are consequently mixed infection, and a greater part of the phthisical changes are the result of the secondary infection.

10. Pure local tuberculosis of the lungs shows no fever or very slight fever, whilst mixed infections cause high fever, so that we may from the fever conclude as to the presence of mixed infection.

11. Pathologico-anatomically there is no qualitative difference between pure tuberculosis and a phthisis complicated by mixed infection, but a quantitative difference exists in that in the latter the inflammatory phenomena are more marked.

12. In animal experiments the more severe character of the mixed infection may be demonstrated.

13. The chief bacteria which play a role in the mixed infection are the following: *Streptococcus pyogenes*, *staphylococcus pyogenes aureus*, *diplococcus pneumoniae*, the pneumobacillus and its varieties, and the pseudo-diphtheria bacillus pulmonalis. All the bacteria which are found in the sputum or by culture methods do not take part in the destruction of the lungs. The changes due to secondary infection may heal up, so that after disappearance of the bacteria only tuberculosis may remain.

14. It is very probable that the secondary infection does not always act injuriously upon the phthisical process. It may happen

that it may hinder the reproduction and spread of the tubercle bacilli, and give rise to changes which may lead to a healing of the disease.

15. The tuberculous foci usually do not enlarge from one centre, but are enlarged by the union of foci developing near one another. The individual focus tends to heal, the danger lies in the formation of new foci through the escape of bacilli.

16. The wall of the cavity is often not tuberculous, but consists of a well-built granulation tissue, and this phenomenon depends apparently chiefly upon the secondary infection, in that the above-named bacteria repress the tubercle bacilli.

J. J. M.

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**Hungarian Punishment for Bigamy.**—Bigamists in Hungary are compelled to submit to a queer punishment. The man who has been foolish enough to marry two wives is obliged by law to live with both of them in the same house.—*N. Y. Med. Rec.*

**True, even in the Practice of Medicine.**—It always struck me, says a writer, as very remarkable that some people can win success easily while others have to wage a long battle for it. Two people may engage in the same line of effort, and while one will make money the other will fail. Take Edward Bellamy, for instance. He made twenty thousand dollars by "Looking Backward." Lot's wife, who tried the same thing, succeeded only in making her salt.

**It's an Ill Wind Turns None to Good.**—"A big family," said the old colored inhabitant, "is sometimes a great blessin' ter a po' man. I got nine sons—ol' en young. One got run over by a railroad, en I got damages out er him: n'er one had a leg shot off en durin' de las' war, en de guv'ment come up han'some fer him, en all de res' er dem has had de good luck ter git huttet in some way, en ever' time dat come I got de damages; so in my ol' age I feelin' mighty comfortably, en I rises up en calls dem 'hilar' blessed!"—*Atlanta Constitution.*

**Treatment of Tinnitus.**—After giving an anatomical description of the ear, with illustration, and going over the various affections of the organ itself, and of other organs capable of causing the symptom of buzzing, the various remedies employed are passed in review. *Cimicifuga racemosa* has been recommended by Robin and Mendel as a drug governing vascularity and a moderator of reflex irritation. It is used as a tincture (gtt. xv.-lx.), fluid extract (gtt. x.-xxx.), or cimicifugin (product of precipitation of the tincture by water (5-20 cgm.)). These authors have found, with the exception of cases lasting over two years, that cimicifuga gives prompt and complete results.—*Bulletin Général de Thérapeutique*, December 8th, 1899.

# The Canadian Journal of Medicine and Surgery

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**Medical Jurisprudence and Toxicology**—N. A. POWELL, M.D., Toronto, and W. A. YOUNG, M.D., L.R.C.P. Lond., Toronto.

**Medicine**—J. J. CASSIDY, M.D., Toronto, Member Ontario Provincial Board of Health; Consulting Surgeon, Toronto General Hospital; and W. J. WILSON, M.D., Toronto, Physician Toronto Western Hospital.

**Clinical Medicine**—ALEXANDER MCPHEEDIAN, M.D., Professor of Medicine and Clinical Medicine Toronto University; Physician Toronto General Hospital, St. Michael's Hospital, and Victoria Hospital for Sick Children.

**Mental Diseases**—EZRA H. STAFFORD, M.D., Toronto, Resident Physician Toronto Asylum for the Insane.

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**Physiology**—A. B. EADIE, M.D., Toronto, Professor of Physiology Woman's Medical College, Toronto.

**Pediatrics**—AUGUSTA STOWE GULEX, M.D., Toronto, Professor of Diseases of Children Woman's Medical College, Toronto.

**Pathology**—W. H. WEPLEN, M.D., C.M. Trinity University; Pathologist Hospital for Sick Children, Toronto; Demonstrator of Pathology Trinity Medical College; Physician to Outdoor Department Toronto General Hospital; Surgeon Canadian Pacific R.R., Toronto; and J. J. MACKENZIE, B.A., M.B., Bacteriologist to Ontario Provincial Board of Health.

**Ophthalmology and Otiology**—J. M. MACCALLUM, M.D., Toronto, Assistant Physician Toronto General Hospital, Oculist and Aurist Victoria Hospital for Sick Children, Toronto.

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VOL. VII.

TORONTO, MARCH, 1900.

NO. 3.

## Editorials.

### DISINFECTION OF SHIPS BY CARBON DIOXIDE.

AN accident which happened about the beginning of November, 1899, on board the ship *Polis Mytilini*, in the harbor of Trieste, has led up to a discovery which may be of the greatest utility in public and private hygiene. One of the seamen having died of bubonic plague, the most rigorous sanitary precautions were immediately taken, to prevent the extension of the disease. When the disinfection of the ship's hold was being attended to, no dead

rats were at first discovered, but when some casks containing fermenting molasses had been removed, a considerable number of dead rodents were found beneath them, which had evidently perished from inhaling the fumes of carbon dioxide escaping from the fermenting molasses.

This accidental discovery has given a hint to Dr. Apéry, of Constantinople, who intends to turn it to a scientific use in disinfecting the holds of ships.

As everybody knows, carbon dioxide, which is not disagreeable to the senses, is, when respired, incapable of supporting life, and causes asphyxia. Being one and a half times denser than atmospheric air it displaces the latter in the lower strata of air in a closed place, so that, if allowed to escape into a tightly closed room, a candle placed near the floor will be extinguished; in the same way an animal or a human being lying near the floor would perish. So that if an apparatus for producing carbon dioxide is placed in the hold of a ship, for instance, a flask containing broken pieces of marble, acidulated with muriatic acid or sulphuric acid or a generator of liquid or solid carbon anhydride, the gas, owing to its density, will displace the air at the bottom of the hold, until at last the lowest portions of this space will be filled with carbon dioxide and the rodents there will be asphyxiated. To bring all the rats in the ship to the desired spot some kind of bait, such as tallow or cheese, is placed there before the gas is disengaged. With a lighted candle placed at a suitable height the investigator can ascertain the level of the hold at which air has been displaced by carbon dioxide, for the light will be extinguished as soon as the supply of oxygen becomes insufficient to support combustion. After the operation is finished the hold can be aired so that a man can enter and remove the dead rats. This aeration may be done with an air-pump, by heating the air in the hold, or any other system of ventilation. To obtain certain results the operation should be repeated two or three times on alternate days.

When the rats begin to be inconvenienced by lack of oxygen they are unable to escape, but become paralyzed and die on the spot. If any of them survive they leave the vessel. To prevent the contamination of other vessels by the rats or the carrying of infection to the land, this operation should be done when the ship is two or three miles out from a port. The operation is quite inexpensive. It can be supervised and the disengagement of the gas can be observed by the lighted candle, which serves as a

reagent and an alarm signal. Owing to its density and diffusibility, carbon dioxide penetrates into the deepest holes and interstices. If the rats are drawn to the desired spot by the bait, they die there and the putrefaction of their dead bodies does not infect the other parts of the ship. Consequently, it is simply necessary to disinfect their dead bodies and then pitch them into the sea.

However, according to the experiments of Montefusco, of Naples, and Leone, of Munich, carbon dioxide prevents the development of micro-organisms and causes their numbers to rapidly decrease. When it has been ventilated, the hold of a ship disinfected in this fashion has no particular odor, such as is experienced after the use of phenol or formaldehyde. This process may be used to a certain extent in the basements of buildings and in shops.

J. J. C.

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#### UNSUCCESSFUL VACCINATIONS—ARE THEY ALWAYS THE FAULT OF THE MANUFACTURER?

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THE following sentences appeared in an editorial in a recent issue of the *Cleveland Journal of Medicine*, and, as they contain a considerable amount of common-sense, we cannot refrain from reprinting them. The writer says, "A most amusing absurdity threatens to occur in a town *not far* from Cleveland. The health officer of the town has been so unfortunate as to experience a large proportion of unsuccessful vaccinations. He attributes this to the poor quality of the virus that he has employed, although other physicians in the same town, using the same make of virus bought from the same drug stores, have experienced successful results. In order to show his authority, his contempt for the opinion of his professional brothers, and his detestation of the fraud that he alleges has been practised upon him, he now asserts that he will sue for damages the druggists who sold the virus, and that he will compute damages at the rate of 75 cents for every unsuccessful vaccination. Beyond making himself additionally ridiculous, it is difficult to see any result that he may achieve from this procedure."

That the manufacturers of vaccine virus in Canada and the United States have gone to very large expense indeed to secure the best plant procurable for furnishing the finest and purest lymph is fact. It is but fair to give those gentlemen credit for

their desire to give the medical profession a lymph; the purity of which cannot be doubted. It cannot, on the other hand, be denied that vaccinations in many cases have given rise to quite unnecessary suffering on the part of the patient from the inoculation of a serum not fit for use. Such cases, however, are now rare, especially since the glycerinized virus has become what might be called fashionable. It is not fair that every time a physician has an unsuccessful vaccination, he should there and then proceed to jump upon the manufacturer of that particular lymph. Medical men must admit that, in a large majority of cases, failure to successfully vaccinate is due to a too great routine process in the performance of this trifling surgical procedure. It is quite possible to be too particular, in a sense, over the cleansing of the spot about to be scarified. In many cases, where the arm is washed with a too strong mercurial solution and the part not thoroughly dried after, the activity of the virus is entirely destroyed. Again, since the glycerinized lymph has come into vogue, it is quite possible for the operator to forget that this lymph takes a good deal longer time to dry than that taken from ivory points, so that by the patient being allowed to pull down his sleeve too soon, the lymph can be very easily removed from the point of application and the vaccination again prove unsuccessful. There is another point worthy of remembrance, and that is, that some physicians insist upon applying a fairly strong antiseptic dressing after inoculation and before the virus has become thoroughly dry, the dressing there and then, instead of the cutis vera, becoming the absorbing agent. These points are worthy of emphasis, and we think that there will be few who will doubt our statements in this connection. In vaccinating it is well to bear the following points in mind: 1. Don't prepare the site by washing with antiseptic solutions. Or if this is thought necessary— 2. Don't fail to rinse thoroughly with sterilized (boiled) water, and dry. 3. Be sure to prick the abraded surface to assure penetration of the vaccine to the cutis vera. 4. Don't draw blood if you can help it. A gentle oozing of serum gives much better results. 5. Don't fail to rub the vaccine thoroughly and persistently into the abrasion. 6. Don't replace the clothing until the vaccine is thoroughly dry. 7. Don't apply antiseptic dressings.

In this connection we may add that the recent smallpox outbreak in the vicinity of Toronto has brought forth strange antagonistic expressions toward compulsory vaccination from a

few in our midst of whom we expected better judgment. It surely cannot be fear of the impurity of vaccine lymph at this advanced stage of serum therapy that is causing so many protests against compulsory public vaccination. From the Chief Magistrate down to certain of those clever ones who compose the Board of Deliberators who decide in conclave solemn what is best for the Young Idea, the plural of him, of course, who attends the public schools, all have something to say. A few medical men, very few indeed, hold the idea that vaccination is injurious and has resulted to the physical injury of the subject. In some instances this may have been true in past years, but at the present time the great mass of the medical profession can give clear, strong evidence of the greatest good to the community at large by compulsory vaccination. Surely the opinion of the entire ethical medical profession, with a few exceptions, should be a sufficient guide to the people of this city. His Worship, for "his credit's sake," should lend his influence and encourage the vaccination of "the Kids," lest the plague be not stayed and the fair face of young Canada be marred and deprived of its original comeliness. As to this latter subject all depends on the point of view, of course. An old Irish woman looking at a man who was occupying a prominent place among his fellows, overheard a remark of sympathy expressed by a passer-by relative to the way the man's face was "pitted" by the ravages of the smallpox. She remarked, "Arrah, darlint, carved work 's the dearest."

W. A. Y.

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#### ADMINISTRATION OF MEDICINES OR FOOD BY THE NASAL PASSAGES.

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WE notice in *Le Progrès Medical* an article by Dr. Salomon, in which he recommends the nasal route for medicine or food, when either the one or the other cannot be administered by the mouth without difficulty, violence or danger. The subcutaneous and rectal routes are not always satisfactory, and we regret our inability to reach the stomach without the assistance of the tube. The introduction of this instrument is sometimes very difficult, and is not always a harmless proceeding, even in the hands of experienced practitioners.

Dr. Salomon has been in the habit, for the last twenty years, of introducing liquids into the nostrils of patients with a teaspoon. The patient is placed in the dorsal position, the head thrown back-

wards and steadied by an assistant if the patient is excited, or simply held by one of the physician's hands if quiet. To facilitate the introduction of liquid, a 20 per cent. solution of cocaine may be applied as deeply as possible to the interior of the nasal fossæ.

Dr. Salomon continues: "Having plugged one of the nostrils with cotton wool, you place a teaspoonful of the liquid you wish to use in front of the other nostril, and, waiting for the beginning of an inspiration, pour it into the nostril by raising the handle of the spoon." The liquid falls behind the glottis, and in passing over the pharynx, excites the movements of deglutition, which carry it on to the stomach. This method gives excellent results in the apoplexy of paralytic patients, in attacks of hysteria or eclampsia, when the patients are obstinate or delirious, in lunatics or in children. It does away with the active or passive resistance of a patient who cannot or will not open his mouth, or refuses or struggles against the introduction of the stomach tube. Death results occasionally from suffocation during the introduction of the tube. Injections of beef-tea and milk have also occasionally been made into the bronchi by an inexperienced hand, without mentioning the hæmatemesis caused by inopportune pressure of a stiff tube on an ulcerated stomach.

A liquid introduced by the nasal fossæ never causes an attack of suffocation. Dr. Salomon claims to have administered German brandy, without provoking spasm or cough, all owing to the fact that, as the liquor did not touch the epiglottis, no excitation of this organ was caused. He also claims that disagreeable medicines may be administered by the nasal route, as the nerves of taste are not disgusted, the substance used being only subjected to the scrutiny and appreciation of the olfactory nerves. Dr. Salomon contends that it renders great service in dealing with children, and that nurses should be taught to use it. Physicians are thus relieved of the inconvenience of passing the stomach tube for their patients, while at the same time the latter receive all that has been ordered for them. Physicians are familiar with the excuses given by nurses in some cases, "We could not give the medicine because the patient would not open his mouth or spat it out of his mouth."

The only objection which can be raised against this method is that at first sight it is slow and seems insufficient to provide proper nourishment for a patient. Certainly it would not be proper to introduce through the nostrils several quarts of beef-tea every day, but quality can be made to supplement quantity, by introducing in

a small volume food which will nourish a patient sufficiently, *e.g.*, yolks of eggs beaten up with milk. The operation can be done in a few minutes. Dr. Salomon, who does not claim originality in utilizing the nasal route for food and medicine, simply desires to extend the use of his method among physicians who will often derive benefit from its employment.

J. J. C.

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### IS ICE-CREAM A FOOD?

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RECENTLY in a case brought before a Toronto court, a medical witness contended that ice-cream was not a food. The principal reason offered for this opinion was that the consumption of the congealed delicacy took away appetite. The judge objected to the force of this reasoning, and remarked that the eating of beef-steak was followed by similar results. If by the term "food" we mean animal or vegetable substances eaten for nourishment, then ice-cream is an agreeable and nourishing food. Properly made ice-cream consists of cream, milk (usually two parts by measure to one part cream), eggs, sugar, and some flavoring extract. These ingredients are congealed in a freezer; hence the name ice-cream. As anyone will acknowledge, the nutritive value of good ice-cream is therefore very high.

It is quite true that its chilling character may prevent dyspeptic persons from eating it, and even those blessed with a robust digestion may prefer warmer food; but all the same the nutritious qualities of ice-cream are not lost by congelation. Personally, we know of a Toronto belle who, during a brief visit to Rochester, was said to have lived on ice-cream and sponge cake. Some years ago we attended a lad, one of whose fingers had been crushed in an ice-cream machine. Chloroform was administered and a portion of his finger amputated. During anesthesia the patient exhibited signs of collapse, which disappeared after he had vomited a large quantity of ice-cream. He subsequently explained that having no other lunch he had to depend on his employer's ice-cream for the mid-day meal. Usually, of course, people who eat it have partaken of cooked victuals and want something cool and sweet for dessert. It does not on that account, however, come under the same category as iced drinks.

If by the term "food" we were to understand "an aliment, which itself is sufficient to sustain life," even lean meat could not be classed as a food. Pavy's experiments prove that two rats,

weighing 12 oz., fed on lean meat and water, remained healthy in appearance but steadily lost weight, and in a month's time weighed only 8½ oz. In another experiment two rats, weighing together 12 oz. 7 drs., were kept on a meat diet exclusively. On the thirteenth day one of the rats died, the weight of its body being 2 oz. 8 drs., and that of the other 6 oz. 3 drs. The live one was still restricted to the same food and died ten days later, the weight of its body then being 5 oz. Now, no medical witness would contend that lean meat is not a food. And further, it would not cease to be a food even if it were frozen. Ice-cream, however, is not in the same category as lean meat. On the contrary, it contains not one but all the elements of a complete diet. We therefore consider that it is a food, the only objection to its use being that it is congealed and may possibly injure the digestion of some persons.

J. J. C.

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#### DOMESTIC SCIENCE IN CANADA.

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THE Canadian girl, nowadays, hates to be a "domestic," even in a mansion, and for good wages; but her renunciation of work, which is well paid for and suitable to her sex, while indicating a desire to rise in society, often proves a detriment to her bodily strength and adds little to her stock of useful knowledge.

And when she does gain the object of her ambition, and poses as a saleslady or office clerk, so that she need not soil her fingers with the preparation of food, she does not really elevate herself in the opinion of sensible people, some of her sisters to the contrary, of course. The abandonment of domestic service by women in Ontario has reached an acute stage, and has already caused embarrassments in the management of many households. Families will be placed in the awkward position of boarding out, or else the ladies will have to do their own domestic work. Looked at from the standpoint of the latter alternative, the opening of a school of Domestic Science at Hamilton is a happy omen. The young ladies of Canadian households, with that natural cleverness and adaptability which belong to highly endowed natures, have already, in many instances, performed their parts in the parlor and the kitchen. There are, to-day, in Toronto, hundreds of homes where everything that meets the eye is "as neat as a pin," and where the cooking is not to be despised, yet the ladies of the house, who do the work, never attended a lecture or witnessed a demonstration at a School of Domestic Science.

Still, we approve of the study of Domestic Science, and we hope that it will fill up some lacunæ, the bridging of which obviates domestic storms. By all means, let Canadian girls learn comparative anatomy, physiology, chemistry, hygiene, etc. The study of these subjects, particularly in their applied forms, will lend an air of dignity, in a display-loving age, to the very necessary, very decent, and never-to-be-despised preparation of our daily food and the cleansing of our homes. And when the "sweet girl graduate" becomes a wife, may she, unlike Rebecca, who served up goat's flesh instead of venison to Isaac, be content with lecturing her good man on the value of proteids, the dangers that lurk in carbohydrates, the sad results of eating the dumplings his mother used to make, and the artistic superiority of ragoût à la Hamilton to Irish stew.

J. J. C.

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#### EDITORIAL NOTES.

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**International Congress of Hygiene.**—We notice in the *Gazette Medicale de Paris* that Surgeon-General Sternberg will represent the United States of America at the International Congress of Hygiene, which is to be held this year at Paris. We hope to be able to announce in our next issue the appointment of a Canadian representative to this meeting of distinguished hygienists.

**A Fecund Cannonade.**—A Boer journal of Vryheld tells a comic yarn which will bear repetition in a medical journal, as it shows the influence of terror on the animal organism. A battery of artillery wishing to have some practice with the guns, the officers bought fifty goats and had them tied on the top of a kopje. After bombarding them for an hour or so the officers went up the hill to count the surviving goats and found fifty-one! One of the goats had dropped a kid.

**Destruction of Larval Mosquitos by Coal Oil.**—Dr. Laveran says that the destruction of mosquitos in the larval state is more easily accomplished than when the insects are full-grown. The work is easily done by pouring a little coal oil over the surface of the water. If equal quantities of coal oil and ordinary oil are used, the former is the more effective. The larvæ are destroyed because droplets of coal oil penetrate their tracheæ and asphyxiate them.

**Aspirine a Succedaneum to Salicylate of Sodium.**—Aspirine, which has been tried in the service of Professor Leyden, of Berlin, by Dr. J. Wolgesmith, is an acetyl-salicylic acid obtained by the action of acetic anhydride on salicylic acid. It is a crystalline substance of a whitish color, which dissolves slowly in water at 98 $\frac{2}{3}$ ° F., in a proportion of 1 to 100 parts, and easily in alcohol and ether. It is scarcely at all acted on by the gastric juice, but in the intestinal juice it breaks up and liberates salicylic acid. Its action in rheumatism is similar to that of salicylate of sodium, but it has an advantage over the latter in the fact that it does not cause loss of appetite and does not disturb the stomach. It is given in cachets in doses of one gramme three times a day.

**International Congress of Medical Electrology and Radiology.**

—At the request of the French Society of Electrotherapy and Radiology, the International Congress of Medical Electrology and Radiology, the initiative of which it has taken, is connected to the International Congress of 1900. A Commission, which is composed of: Messrs. Weiss, Professor at the University of Paris, President; Apostoli and Oudin, Vice-Presidents; Doumer, Professor at the University of Lille, General Secretary; Moutier, Secretary; Boisseau du Rocher, Treasurer, and of Messrs. Bergonié, Professor at the University of Bordeaux; Bouchacourt and Branly, Professors at the Catholic Institute of Paris; Larat, Radiguet, and Villemin, Surgeons of the Hospitals of Paris; has been asked to assure its organization. This congress will take place in Paris, from the 27th of July to the 1st of August, 1900. All inquiries for further information must be forwarded to Prof E. Doumer, General Secretary, 57 Rue Nicolas-Leblanc, Lille. Applications for membership are to be sent to Dr. Moutier, 11 Rue de Miromesnil, Paris.

**Thirteenth International Congress of Medicine at Paris.**—

The thirteenth meeting of this congress will take place in Paris, August 2nd to 9th, 1900. The Executive Committee makes the following announcement to the members of the medical profession in the columns of the *Gazette Médicale de Paris*: (1) A reduced rate of 50 per cent. will be granted on French railways to members of the Congress on presentation of a leaflet which will be mailed directly to each member. The leaflet will be valid for one month, from the 25th of July to the 25th of August. (2) Arrangements for lodgings have already been made by the Committee with the

chief agencies for lodgings and voyages of Paris. To become a member of the Congress the admission fee, \$5.00, should be sent to the office of the *Gazette Medicale de Paris*, 93 Boulevard Saint-Germain, Paris. The chief editor of that journal, Dr. Marcel Baudouin, will attend to all such applications. The Executive Committee has also issued a circular to the profession in Canada through their secretary, Dr. J. F. Loranger, of Montreal, giving the terms of membership and the names and addresses of the secretaries of sections. Dr. F. N. G. Starr is the Secretary for Ontario, and he is prepared to receive the fee and issue the membership card to any physician who may desire it. Members, when remitting, should state the special section to which they wish to belong. Communications with regard to papers (title) should be sent to the secretary of the particular section to which they belong before the 1st of May, 1900.

**Salicylate of Sodium in the Treatment of Orchitis.**—Dr. R. Romme, in *La Presse Medicale*, writes an article on the use of salicylate of sodium in gonorrhoeal orchitis, which has been advocated by Dr. Picot and other physicians. He advises a preliminary purge with 40 grammes of sulphate of magnesium or sulphate of sodium. The dose which seems to be sufficient is one gramme of the salicylate of sodium four times a day. The patient is confined to bed in the horizontal position, his scrotum being supported on a pillow or a small board covered with wadding. In simple orchididymitis, in which there is no notable effusion into the tunica vaginalis testis, nor swelling with pain in the spermatic cord, the happy effects of salicylate of sodium appear very soon. The testicles become less tender, are reduced in size and become more supple, and the skin over them becomes less heated and red. If the preparation is continued, improvement in the patient's condition becomes still more apparent. In four or five days it becomes difficult to tell the diseased from the sound side; on palpation, however, an indurated spot can be felt in the epididymis, which persists for a considerable time. Treatment in simple orchitis lasts eight or ten days, and the patient suffers very little pain. When there is a large effusion into the tunica vaginalis testis, or an effusion into the spermatic cord (funiculitis), salicylate of sodium is less efficacious. In such cases it is necessary to use concurrently the unguentum hydrargyri combined with belladonna, so as to promote absorption of the inflammatory exudation. Relapses should be treated by a resumption of the salicylate of sodium. In case of a relapse due to constipa-

tion, 40 grammes of the sulphate of sodium or sulphate of magnesium will act promptly in removing the disease.

**Advertisements of Abortifacients.**—Advertisements similar to the following frequently appear in Canadian journals of otherwise high standing:

## MARRIED WOMEN

If you are irregular or troubled with suppression, write to MRS. MARION WILMOT, Box 381, Bridgeburg, Ont., and she will send you the formula that will relieve the worst case in two to five days. No pain. This receipt has brought happiness to hundreds of anxious women.

A case recently tried in England (*R. vs. Wm. Brown et al.*) has resulted in the conviction of five persons who had been the advertisers of "female medicines." The remarks of the presiding judge are worthy of publicity and should be of interest to "proprietors, editors and printers" of newspapers in Canada who make public these advertisements, as well as the advertisers themselves. The *British Medical Journal* gives the following in its report of the proceedings:

Mr. Justice Darling in concluding his judgment said, according to the report in the *Times*: "This crime was rendered possible because newspapers accepted advertisements of this illegal business. It was desirable that it should be known that any one who incited, by whatever means, a person to commit crime himself committed crime. The jury had found by their verdict that these advertisements were incitements which were used by the men on whom he had passed sentence to the crime of abortion. If any advertisements which incited to this or any other crime appeared again, the proprietors, editors, and printers of the newspapers which made them public, would deserve to find themselves—and if any words of his had any influence with the treasury they would find themselves—in that dock; and although they pointed out no particular means for the commission of the crime, if the jury found that they did incite to crime, they would probably receive a more severe sentence than that passed in this case."

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**Dr. J. N. E. Brown Married.**—News has reached the city that Miss Alice Freeman, who was formerly editor of "Woman's Empire," in *The Empire*, and known as "Faith Fenton," was married at Dawson, on New Year's Day, to Dr. J. N. Elliott Brown, Territorial Secretary and Clerk of the Yukon Council. John, old boy, we congratulate you.

*Obituary.*

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THE LATE SIR JAMES PAGET.

By the death of this eminent surgeon, perhaps the leading English surgeon of his day, the medical world has suffered what may well be termed an irreparable loss. Although Sir James retired some years ago from active practice, and latterly had been but seldom seen in public, he continued to the last to take a keen interest in all that concerned the profession. At the time of his death, the 30th of last month, he was Sergeant-surgeon to Her Majesty the Queen, Surgeon to H.R.H. the Prince of Wales, and Consulting

Surgeon to St. Bartholomew's Hospital. He was D.C.L. of Oxford, LL.D. of Cambridge and Edinburgh, Vice-Chancellor of the University of London, Honorary M.D. of the University of Dublin, and Member of the Institute of France. He was a Fellow of the Royal Society. In 1871 he accepted a baronetcy, and in 1875 he was elected President of the Royal College of Surgeons. He also enjoyed the distinction of having been president of the first medical congress held in England. Both as a man and as an eminent surgeon he was regarded by his colleagues with unbounded reverence and admiration. Although bounteously endowed by nature with many sterling qualities and exceptional gifts of the highest order, the greatest of his characteristics was his astounding capacity for work, a capacity which he chiefly devoted to professional subjects. From the beginning of his career he occupied himself almost solely with the study of medical science, and took but comparatively little interest in questions not directly germane to his profession.—*The Medical Review*, London, January.

[We acknowledge with thanks the loan from the *Medical Review of Reviews*, of New York, of the half-tone of the late Sir James Paget.—ED.]

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**Dr. J. H. Corbett Dead.**—The medical profession of Ontario received a terrible shock, on January 31st, on receipt of the news of the sudden death of Dr. J. H. Corbett, one of the oldest and most highly respected residents of Orillia. Dr. Corbett was the senior physician of the town, and had lived there from early manhood. He was not only respected by every one, but loved by very many. He was a staunch Conservative, and an active and devout member of the Church of England. He leaves a widow and ten daughters, four of whom are married.

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**The Late Sir Thomas Grainger Stewart, M.D., F.R.S.E.**—The death is announced at Edinburgh, on February 3rd, of Sir Thomas Grainger Stewart, M.D., at the age of sixty-one years. Sir Thomas was physician-in-ordinary to the Queen in Scotland, professor of the practice of physic and clinical medicine in Edinburgh University, consulting physician to the Royal Hospital for Children, and to George Heriot's Hospital; late president of the Royal College of Physicians of Edinburgh, and an honorary president of the Tenth International Medical Congress at Berlin.—*N. Y. Med. Jour.*

## The Physician's Library.

### BOOK REVIEWS.

*The International Text-Book of Surgery.* By American and British authors. Edited by J. COLLINS WARREN, M.D., LL.D., Professor of Surgery in Harvard Medical School; Surgeon to the Massachusetts General Hospital; and A. PEARCE GOULD, M.S., F.R.C.S., Surgeon to Middlesex Hospital; Lecturer on Practical Surgery and Teacher of Operative Surgery, Middlesex Hospital Medical School; Member of the Court of Examiners of the Royal College of Surgeons, England. Vol. I. General and Operative Surgery, with 458 illustrations in the text and nine full-page plates in colors. Philadelphia: W. B. Saunders, 925 Walnut Street. 1900. Price, \$5.00. Toronto: J. A. Carveth & Co.

There is no science which, owing to the wonderful strides made in it almost, one might say, from day to day, is in such a transitory state as that of "The Principles and Practice of Surgery." There is hardly a month in which some considerable step forward is not made in this department, so that but a short time must of necessity elapse before a work on surgery becomes more or less old, requiring the compiling of something new in order to keep up with the general advancement. It is a welcome we extend, therefore, to "The International Text-Book of Surgery," as even after a somewhat cursory perusal we feel sure that it will receive an exceedingly warm reception at the hand, as well as from the pockets, of both American and English practitioners. Among the contributors to this book are such well-known men as J. Bland Sutton, W. G. Spencer, Maurice H. Richardson, Rushton Parker, Chas. McBurney, J. B. Hamilton, J. Chalmers Da Costa, and last, but by no means least, I. H. Cameron, of Toronto.

The work, as a whole, is thorough and complete, embracing general and operative surgery in a manner which cannot but be endorsed by the staunchest of critics. Mr. I. H. Cameron, of Toronto, deals at some length with "Surgical Tuberculosis." He states that all periods of life are subject to tuberculosis, but that the surgical aspect shows itself largely in childhood, the strumous glands and bone and joint affections occurring most frequently in this period. The bacillus tuberculosis may pass from the mother to the fetus *in utero*, giving rise to a peculiar susceptibility by the tissues of the body to the tuberculous irritant, thus affording a favorable nidus for the development of the germ. The writer states that the route by which the tubercle germ most frequently enters the system is the respiratory passage, the most likely vehicle of the contagion being dust, infected with dry sputum. The author lays stress upon the maximum amount of sunlight and pure air as being most important in the general treatment of the disease. Amongst the drugs which are most serviceable, are iron, manganese, quinine, strychnine, iodine, chlorine and phosphorus, with their potash, soda and lime salts, creasote and guaiacol, cod-liver oil and ichthyol, protocuculin and methylene blue; but Mr. Cameron adds "any or all of these in the absence of the trinity, free air, free sunshine and free nutrition, are broken reeds indeed." The author deals with his subject under several headings, and takes up separately (1) tuberculosis of skin and mucous membrane, (2) tuberculous lymphadenitis, (3) tuberculosis of the serous membranes, (4) tuberculosis of tendons, tendon sheaths and muscles, (5) tuberculosis of muscles and fascia, (6) of the genito-urinary organs, (7) of the prostate, vesiculæ seminales, testis, epididymis and vas deferens, (8) of the bladder, (9) of the kidney.

Another of the chapters which gave us peculiar pleasure to read carefully was that on "Operative and Plastic Surgery," by J. Collins Warren. In this section the author commences by discussing the important subject of instruments, advising which tools had best be employed for the performance of the best work. After shortly referring to Sutures and Ligatures, the technique of Dissection and the Arrest of Bleeding, Dr. Warren goes into the ligature of the various arteries of the body, from the innominate to that of the dorsalis pedis and posterior tibial. The author devotes thirty pages to discussing the different amputations, illustrating his text with some very clear and distinct cuts, and then takes up the various joint excisions. Twenty pages are given over to Osteotomy, also beautifully illustrated, and the balance of the article to Plastic Surgery. This section of Dr. Warren's and the one by Mr. Cameron on "Surgical Tuberculosis" are alone worth the small price of the book, and we don't mean to be stereotyped in expression when we claim that Mr. Saunders is to be congratulated upon the work, and feel sure that he will secure for it a very large sale.

*The American Year-Book of Medicine and Surgery.* Being a yearly digest of scientific progress and authoritative opinion in all branches of Medicine and Surgery, drawn from journals, monographs and text-books of the leading American and foreign authors and investigators, collected and arranged with critical editorial comments by—

Samuel W. Abbott, M.D.	Wyatt Johnston, M.D.
Archibald Church, M.D.	Walter Jones, M.D.
Louis A. Duhring, M.D.	David Riesman, M.D.
D. L. Edsall, M.D.	Louis Starr, M.D.
Alfred Hand, Jun., M.D.	Alfred Stengel, M.D.
Milton B. Hartzell, M.D.	A. A. Stevens, M.D.
Reid Hunt, M.D.	G. N. Stewart, M.D.
Reynold W. Wilcox, M.D.	M.D.
I. M. Baldy, M.D.	Howard F. Hansell, M.D.
Chas. H. Burnett, M.D.	Barton Cooke Hirst, M.D.
J. Chalmers DaCosta, M.D.	E. Fletcher Ingals, M.D.
W. A. Newman Dorland, M.D.	W. W. Keen, M.D.
V. P. Gibney, M.D.	Henry G. Ohls, M.D.
C. A. Hamann, M.D.	Wendell Reber, M.D.
I. Hilton Waterman, M.D.	

under the general editorial charge of GEORGE M. GOULD, M.D., in two separate volumes, one on Medicine and one on Surgery. Philadelphia: W. B. Saunders, 925 Walnut Street. 1900. Toronto: J. A. Carveth & Co. Price, \$3.00 a volume in cloth; \$3.75 in half morocco.

We trust that when we say that we welcome once more to our library shelves "The American Year-Book of Medicine and Surgery" we will not be understood as desiring to use a stereotyped phrase—not at all. We welcome the book because of its merit, and especially this year on account of the publisher adopting the happy idea of dividing the work into two volumes—the one on Medicine, the other on Surgery. There are many men who, in the past, would have purchased the book had it not been for the fact that the work was too general a one for them. Physicians are naturally supremely interested in medicine, whereas surgeons, on the other hand, cannot often occupy their spare time perusing chapter after chapter, which, though of great interest to them, is not exactly a part of their day's work. We think, therefore, that the publishing house will find a largely increased sale for the work in 1900. Each volume this year is just the right size for easy reading, consisting of between 500 and 600 pages. In our caption we have given the list of names of the collaborators of each volume, the first, that of the volume on Medicine; the second, that of Surgery. We are much pleased to find that our friend Wyatt Johnston, of Montreal, is a contributor to the volume on Medicine. His article consists of a chapter of nearly twenty pages on Legal Medicine. We only regret that it is not double, yes, triple, the length, as the subject is one which

the author is well able to treat of in its every detail. Dr. Johnston discusses from a medico-legal standpoint such points as the cause and varieties of rigor mortis, subpleural ecchymoses in death from primary heart failure, edema of the laryngeal folds in immersed bodies, death from tetanus, medico-legal pathology of brain injuries, differential diagnosis of traumatic and spontaneous cerebral hemorrhage and ulcer of stomach caused by trauma. He closes the chapter with a page or two on Toxicology. The section on Cutaneous Diseases and Syphilis is contributed by Louis A. Duhring and Milton B. Hartzell, of Philadelphia. The plates illustrating lichen planus, liomyoma of the side of the face, lupus vulgaris before and after treatment are exceedingly good. The allusions made to Finsen's photo therapy and the therapeutic application of the X-Ray are exceedingly interesting. In writing of internal remedies in the treatment of skin diseases, the authors refer to the use of yellow oxide of mercury ointment, the use of pulvis cuticolor, naftalan, casein ointment, dry calcium sulpho-hydrate, xeroform, kresamin, tannoform, and egg albumen. The chapter on Dermatology, as all the other sections are, is short, succinct and to the point, dealing almost entirely with what is most advanced in the dermatological world. In the volume on Medicine other chapters are contributed on Pediatrics, Pathology, Nervous and Mental Diseases, Materia Medica, Physiology, Public Hygiene and Physiologic Chemistry. The volume on Surgery consists of sections on General Surgery, Obstetrics, Gynecology, Orthopedic Surgery, Ophthalmology, Otology, Diseases of the Nose and Larynx, and Anatomy. We read with great satisfaction the section by I. Montgomery Baldy and W. A. Newman Dorland on Gynecology. The few pages on Perineorrhaphy are specially good, plates 3, 4 and 5, illustrating this subject splendidly. Though the volume on Surgery is of a more general character than that on Medicine, yet it is complete and in every respect up-to-date. The work as a whole is a credit to any publishing house, and Mr. Saunders will, we trust, be amply repaid for the extra trouble and expense he has gone to in publishing in two separate volumes, by a largely increased sale over that of 1899.

W. A. Y.

*Christian Science.* An exposition of Mrs. Eddy's wonderful discovery, including its legal aspects. A plea for children and other helpless sick. By W. A. PERRINGTON, Lecturer in the University and Bellevue Hospital Medical College, etc. New York: E. B. Treat & Co. 1900.

We welcome Mr. Purrington's book as a valuable *exposé* of the gross absurdities of Christian Science, and as a protest against the theory "that the free right to worship according to conscience implies the right to commit any act under the pretext of religion which an evil, or erratic"—(we may add, or covetous)—"mind may inspire."

The first chapter is an answer to the questions, "What is Christian Science?" and "What are its Legal Aspects?" In the second the author quotes from Mrs. Eddy's books, "to show something of the life, pretensions, methods and literary output of this remarkable woman, leaving the reader to judge, from her own words, whether she is, as her partizans assert, learned, modest, truthful and generous; or, as her adversaries declare, ignorant, irreverent, boastful and greedy."

The succeeding chapters treating of "Manslaughter and the Law," "Christian Science before the Law," are very interesting and instructive.

The rulings in some of the cases cited are very curious. In one, where deceased, beyond reasonable doubt, lost his life by defendant's unskilful treatment, the defendant was acquitted because of his ignorance and because it was not proved that he had killed others by his treatment.

This extraordinary ruling was, however, reversed in the case where a man who held himself out as a physician, killed a woman by keeping her for three days swathed in flannels saturated with kerosene. Here the court ruled, substantially, that the standard as to what constitutes criminal recklessness, is not gauged by the actor's *belief* or idea of danger, but by common experience. The jury found that the kerosene was applied as the result of foolhardy presumption or gross negligence.

The author argues that whether the treatment was positive or negative ought to make no difference, as "it is just as much homicide to cause death by starvation as to use an active poison."

The ruling of a Nebraska court, quoted on page 84, seems to be good, common-sense. The defendant in this case was a Christian Scientist. When asked if he took pay from his patients he replied that he expected to be remunerated, and if the patients "are not willing to part with the sacrifice themselves it is not expected that they should reap the benefit." "Considering that defendant described his treatment as one of prayer, this intimation that the answer to prayer would be contingent on the payment of the Scientist's fee, apparently seemed blasphemous to the court," who cited from the Bible Acts viii. 13-23, and ruled: "The exercise of the art of healing for compensation, whether exacted as a fee or expected as a gratuity, cannot be classed as an act of worship, neither is it a performance of a religious duty."

The principle underlying this question, as laid down by the Supreme Court of the United States is as follows: "Laws are made for the government of actions, and while they cannot interfere with mere religious beliefs and opinions, in so far as they are merely beliefs, not reduced to criminal or dangerous practices, are not proper objects of its control."

How far the State is justified or bound to interfere in Christian Scientists' practice so as to guard the health and lives of its people, is a most important, pressing question. We commend Mr. Purrington's book to the earnest consideration of our medical brethren, as containing valuable information on the subject.

J. H. R.

*A Text-Book of Diseases of Women.* By CHARLES B. PENROSE, Ph.D., Professor of Gynecology in the University of Pennsylvania; Surgeon to the Gynecology Hospital, Philadelphia. Illustrated. Third edition. Revised. Philadelphia: W. B. Saunders, 925 Walnut Street. 1900. Toronto: J. A. Carveth & Co. Price, \$3.75.

This work has been written for the medical student or the general practitioner, who may consult a treatise on gynecology for practical guidance when treating the diseases of women. The author has not burdened his text with references to different therapeutic procedures, but, in most instances, recommends but one plan of treatment for each disease, avoiding in this way a multiplicity of methods which may be confusing to the reader. This arrangement will no doubt commend the work to students and is really philosophical, when one considers that the medical reader is not, in most cases, anxious to know all that can be written on any one subject, but rather what is essential, and particularly the safest method of treatment. So that although there has been a rather large issue of manuals of gynecology of late, we are inclined to think that for the reason just given, Dr. Penrose's book is one of the best we have seen. The author has also the happy faculty of expressing his ideas in clear, forcible language, probably the result of his experience as a teacher, which adds very much to one's willingness to accept them as true, even when they differ from one's own. The illustrations, which are quite numerous, are excellent and the descriptions given of them in the text are full and complete.

The caution regarding the use of the uterine sound (page 37) is appropriate: a physician in making well-meant efforts to measure the length of a uterus may inadvertently produce an abortion.

The chapters in which injuries to the perineum, the results of laceration, are described, are masterly. The accompanying illustrations in this part, as well as in the chapters devoted to prolapse of the uterus, are almost as suggestive as following the operations *de visu*. Trachelorrhaphy is well described and the illustrations are most helpful. The various diseases (benign and malignant) of the cervix and corpus uteri, of the Fallopian tubes and ovaries, come in for full and instructive description.

One of the most telling chapters is that devoted to gonorrhoea in women. As physicians know, the far-reaching effects of this disease are often followed by results destructive to health and life. Dr. Penrose does not, however, hold

that the husband is always to blame for a pyosalpinx or endometritis in the wife, as these lesions occasionally arise from abortion or puerperal sepsis.

The persistency with which gonorrhœa sticks to the vaginal glands is strongly corroborated. The writer recalls a case of gonorrhœa, which continued infective though carefully treated until cured by an operation in which a large part of the right gland of Bartholin and its duct had to be dissected out. The severed tissues afterwards granulated and the excavation filled in.

The statement that a man cannot contract gonorrhœa from venereal contact with a menstruating woman unless she has gonorrhœa is probably correct; but the opposite opinion was pretty generally believed in, previous to the discovery of Neisser's bacillus.

J. J. C.

*Surgical Anatomy.* A treatise on Human Anatomy in its application to the practice of Medicine and Surgery. By JOHN B. DEAVIER, M.D., Surgeon-in-Chief to the German Hospital, Philadelphia. In 3 volumes, with 400 plates. Philadelphia: P. Blakiston's Son & Co.

After twelve years of preparation a man should succeed in producing an excellent work, and Deaver has succeeded in an eminent degree, for I have before me a beautiful production in its material, in its artistic qualities, and in its workmanship.

In this volume, on the upper extremity, the shoulder, the back, the cranium, the scalp and the face, there are all 632 pages, of which 599 are taken up with text and plates (151 in all) and 32 pages in a comprehensive index.

The work, too, is strangely free from the "American language" that differs so widely from the "English language," though there are a few terms in which the former is apparent. The text is clearly put and in most instances the description is good, though in some parts this could be improved; for example, that of the brachial plexus.

The parts of the book devoted to landmarks, and especially of the relations these bear to subjacent structures, are most useful both to the student of anatomy and to the busy practitioner. Among these is a table giving the relations the vertebral spines bear to the internal organs. It is unfortunate that in a few instances the ends of the lines in some of the plates do not accurately correspond to the parts indicated. This, though, may easily be improved upon in future editions.

The plates showing the motor areas and the lines of incision for the ligation of arteries and for the stretching of nerves are most instructive, and will prove to many a ready reference.

A unique part in the discussion of fractures and dislocations is the description of the anatomical relations of the structures in their displaced position, for this is one of the difficult things for a student to think out.

It is gratifying to one, too, to find such a clear and concise account of the "muscles of the back"—the terror of the student—for from this book a knowledge of them is grasped with comparative ease.

Throughout the work one finds considerable attention devoted to a description of muscular actions, and while it may be better for the advanced student to think these out for himself, yet the average student will not do this, and hence is very materially assisted. In fact, in the heavy work of a medical course a student sometimes is prone to forget that he should do any thinking for himself at all. Such being the case some one else has to think for him until he can get time to digest his material.

The publishers are to be congratulated on their production of Deaver's work.

F. N. G. S.

*The Treatment of Diseases of the Nervous System.* A Manual for Practitioners. By JOSEPH COLLIER, M.D., Professor of Nervous and Mental Diseases in the New York Post-Graduate Medical School; Visiting Physician to the New York City Hospital. Illustrated by twenty-three engravings. New York: Wm. Wood & Co. 1900.

There are several good works at present on the shelves of our medical booksellers which deal with and treat of Diseases of the Nervous System. Too

many, however, of the authors of those works have taken too much for granted and have given credit to the general practitioner for knowing really more than he does about this specialty, a subject in which, it must be admitted, there is, alas, too little knowledge among medical men who are general practitioners, and who do not pretend to adopt the more modern idea and specialize. Dr. Collins, however, in presenting his book to the profession, has given special consideration to these very facts, and though he has presumed that the average physician has sufficient knowledge to recognize the more familiar nervous diseases, yet he lays stress upon the most approved current methods of treating nervous diseases, and all through has succeeded in presenting his subject in such a manner that we feel sure that his book will be found to be in the points alluded to ahead of others already published. A good deal of attention has been given to the causation of diseases of the nervous system. We like the order in which the various diseases have been taken up, the author having commenced by considering Diseases of the Brain, including the treatment of the various forms of Meningitis, Encephalitis, Infantile Cerebral Palsies, Multiple Sclerosis, Tumors of the Brain, etc. After Diseases of the Brain, he goes on to Diseases of the Spinal Cord, including the treatment of Acute and Compression Myelitis and Inflammation of the Central Gray Matter. Then he takes up Diseases of the Peripheral Nerves, of the Sympathetic Nervous System and Functional Nervous Diseases.

We highly approve of the discussion on that altogether too common complaint, headache, and are glad that so much space has been devoted to it. We like the book very much and bespeak for it a very kind reception.

W. A. Y.

*A Manual of Practice of Medicine.* By A. A. STEVENS, A.M., M.D., Instructor in Physical Diagnosis, University of Pennsylvania, and Professor of Pathology in the Woman's Medical College of Pennsylvania. Specially intended for students preparing for graduation and hospital examinations. Fifth edition. Revised and enlarged. Post 8vo, 519 pages. Numerous illustrations and selected formulæ. Price, bound in flexible leather, \$2.00, net. Philadelphia: W. B. Saunders, 925 Walnut Street. Toronto: J. A. Carveth & Co. 1898.

The fact that a fifth edition of Stevens' Practice has been produced by the publisher would go to show that the American medical student finds the work useful. As the author says, in the preface to the first edition, "There seems to be a real need for books which present their subjects in an assimilable form."

After perusing quite a number of the articles in this work we are fairly inclined to think that he has succeeded in his task, and has presented the various matters treated of, briefly, but cogently, giving the pith of the subject without unnecessary verbiage. Perhaps this view of the merits of the work may be more apparent to a practitioner, who is familiar with bulky volumes of the "Practice of Medicine," than to a student, but the latter's case is certainly more urgent, as he has to face the inevitable examiner and must possess his knowledge in a compact, but accurate form. The chapters devoted to Diseases of the Skin and its Appendages will be welcomed by many, who desire to have a desk companion which covers the general field of practice, excepting the more important specialties. The formulæ under the head of treatment are helpful, and fairly represent modern therapeutics. The work is bound in limp covers, and when opened stays open. The text is of fair size and can be read with ease.

J. J. C.

*A System of Medicine by Many Writers.* Edited by CLIFFORD ALBUTT. Vol. VIII. New York: The Macmillan Co. 1900. Toronto: J. A. Carveth & Co., Canadian Agents.

The final volume of this admirable series is devoted chiefly to psychiatry and cutaneous diseases.

The summary of mental diseases, while not exhaustive, still is comprehensive, and the various subjects are treated by writers of known authority in this department of medicine.

The plates in the chapters on skin diseases are not, perhaps, as numerous or as elaborate as one might expect, but the text is all that can be desired.

In the opening pages of the volume a section is devoted to Latah, a nervous disease which has only recently found a place in works of the sort. Church cursorily mentions it by name, but Dr. Manson's description is the best which we have seen.

In Canada there will be a certain amount of interest attached to this nervous phenomenon owing to the fact of its frequent occurrence here, especially among the French of northern New Brunswick.

The writer, while spending the summer in that region, was made familiar with several cases of this condition long before he had ever heard it scientifically described, or knew that it also existed in oriental countries.

The cohabitation of brothers and sisters, like all consanguineous unions, seems to tend to degenerations of the sort among the offspring, and though this practice was usual among the ancient Egyptians, and at that time passed apparently without comment, the occurrence of the custom in the locality mentioned, among the very ignorant, would appear to have been followed by most unfortunate results. Nearly every lumber camp, we have been told, has its "jumping Frenchman" or victim of latak; and it is to be hoped that the attention which has been recently called to the disease, may prove beneficial in its subsequent suppression.

E. H. S.

*Polk's Medical and Surgical Register of the United States and Canada.*

A corps of men is now canvassing for information for the new edition of Polk's Medical and Surgical Register of the United States and Canada. This publication is now so firmly established, so widely known and universally used as to scarcely call for any comment, as it has become standard in the profession and is a book of daily reference. It is a complete directory of the medical profession of North America and all that pertains thereto. To issue such a work is a formidable undertaking, involving a vast amount of labor, but the facilities of the Messrs. Polk & Co are exceptional. We predict for them still greater success in the coming edition, to be issued as early this year as possible, and we cheerfully commend Polk's Register to the profession as an invaluable work of reference. Each succeeding issue has been an improvement on its predecessor, and we are promised that the next number shall be as near perfect as such a book can be made.

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PAMPHLETS, REPRINTS, ETC., RECEIVED.

"A Review of the History and Literature of Appendicitis." By George M. Edebohls, A.M., M.D., New York.

Reprint from the *Medical Record*. November 25th, 1899. New York: The Publishers' Printing Company, 32-34 Lafayette Place. 1899.

"The Fourteenth Annual Meeting of the Association of Executive Health Officers of Ontario, held in the city of London on the 13th and 14th of September, 1899." Toronto: Printed by Warwick Bros. & Rutter, 68-70 Front Street West. 1899.

"Merk's Manual of the Materia Medica, together with a Summary of Therapeutic Indications and a Classification of Medicaments." A Ready Reference Pocket Book for the Physician and Surgeon, containing names and chief synonyms, physical form and appearance, solubilities, percentage strengths and physiological effects, therapeutic uses, modes of administration and application, regular and maximum dosage, incompatibles, antidotes, precautionary requirements, etc., etc., of the chemicals and drugs used in modern medical practice. Published by E. Merck, Darmstadt, Germany. 1899. All rights reserved.

Selected Articles.

ALKALOMETRY.\*

BY A. S. WAISS, M.D.,

Professor of Gynecology, West Side Clinical School.

I HAVE been asked to fill Prof. Waugh's hour, he having been called out of the city for a brief visit.

I have selected Alkalometry, and the reasons for my conversion thereto will develop as we go on. Years ago, when I left the University with my precious sheepskin in my possession, the lessons of my worthy professor of materia medica and therapeutics still fresh in mind, I imagined I possessed an armamentarium that nothing could circumvent. But how sad the awakening!

Hopes were high, for wasn't each drug specially studied, labeled, and tacked to a disease it was to cure? Why, disease was to fly before it, as the mist does before the morning sun. But did it do it in actual practice as it did theoretically? And why not? This "why not" is what we will now discuss.

Have you, gentlemen, ever considered how much a physician is in the power of the druggist, how much of the physician's reputation is in the druggist's hands? Take, for instance, the brightest medical mind, a man of vast learning and erudition, a good diagnostician, in fact a perfect physician, see him at the bedside of an intensely sick person, the diagnosis at last correctly arrived at, a certain drug or drugs found necessary, correctly chosen and prescribed, what then? The  $\mathcal{R}$  is taken to a druggist, and there is where our doctor's woe begins, for our druggist happens to belong to that great class of Ph.G's, suffering from a disease known as "substitution," the greatest evil of our times, yet a boomerang, as you shall see.

Here I wish to add between parentheses, in all justice and fairness, that there are some who have not succumbed, but they are in an awful minority in this great city of ours.

The druggist scans the  $\mathcal{R}$  and finds that either he doesn't keep the drug prescribed or that he is just out of it, and it is too much bother to order a whole bottle for just one  $\mathcal{R}$ , or that it would take too much time to get, or he may have something that is "just as good," or it may look just as the other stuff, taste like it, in fact could not by either smell or taste (our ordinary means at hand) be

\* A lecture delivered to the Senior Class at Harvey Medical College.

detected; or the druggist may have a preparation of his own (this happens oftener than one imagines) that he wants the physician to use, *nilli nilli*, whether the doctor wants it or no; or better, whether the patient needs it or no; and I will leave to your imaginations the sequel. We see our physician with his brow furrowed, bending over his patient, watching his fleeting breath, or the patient's heartrending struggles, and wonder continually why the drug he prescribed is not affecting this patient as he has been taught, and knows the drug would and should act. Why does his patient show symptoms the very reverse of those he was to expect? Why?

This is but a short review, gentlemen, of the dishonest druggist, who wilfully gives something else than was prescribed. More, a great deal more, could be said in sharper, louder, in more ringing and cutting words, for substituting is a crime. I place it among the capital crimes, for many a life has been sent into the hereafter, and the fault thereof rolled on the physician's shoulders.

So let us leave him and turn to the honest druggist, who abhors substituting, who would rather lose an  $\text{£}$  than give something not called for. How about him? There are some druggists who make all their tinctures and extracts, while others buy them already made. Now what means have these latter to verify the strength of the products they bought? None. They bought them on faith, they are selling them on faith, and on faith your patients are taking them; and *o*, quite often, without the desired result.

Now again, as to the druggists who make their own tinctures and fluid extracts, how about them? (mind well we are speaking of the honest druggist). His pharmacopeia demands a certain quantity of a drug, finely divided let us say, a certain menstruum, of a certain strength and quantity, to be packed in a percolator, and the menstruum permitted to pass through the drug in a certain length of time, which all was done faithfully. Now how about his tinctures, or extracts—surely they are correct.

Let us see: The pharmacopeia demands that the drug shall be of certain strength, that is, that it should contain of the drug-essence, of the active principle, alkaloids in some, a certain quantity. Now what means has he to satisfy himself of the fact? None, absolutely none. He bought his drugs on faith, and on faith he made his products.

But faith is often lacking in scientific accuracy. We all know that drugs labeled under a generic name are not always of a standard strength; the variations are from *nil* to way beyond the standard, which is but an accepted average. A great many reasons can be given for this state of affairs. You may have noticed perhaps how differently the same kind of plants grow on a comparatively small patch of ground. The land may not be as rich in one spot or locality as in another, there may have been too much or too little moisture during the plant's life, the climatic conditions may have been most excellent or the very reverse, with either too

much or too little sunshine, too much or too little heat, or as it often happens, too great a variation of temperature, and all these elements and many more enter into the life and growth of a plant.

Then the plant may have been harvested too soon, or permitted to get too ripe on the stem; all these affect the active principle of the plant; so, mark me, the useful part of the plant medicinally is the active principle, the alkaloid it contains. Now what means has our druggist to satisfy himself that his drugs contain the exact quantity of the active principle, the alkaloids demanded. May not his fluid extract or tincture be absolutely inert, having extracted only coloring matter and some other inert but soluble substances from the drug, and he in all honesty dispenses an inert substance, when the patient's life may depend on the quantity of alkaloid prescribed?

On the other hand, let us suppose our drug is of the best quality obtainable, correctly grown, correctly garnered, dried and prepared; this drug may go to the other extreme, and contain more active principle or alkaloid than demanded, what means has he to verify this again so as to cut it down? None, again. So he makes his tinctures and fluid extracts that are really surcharged with alkaloids, may it not also happen to this druggist that his bottles containing his surcharged preparations, standing on his shelves, gradually evaporate? Alcohol and water are volatile, and many a stopper does not fit its bottle, and it gradually diminishes in bulk but gains in strength; for alkaloids are not volatile at ordinary temperatures, and his products become twice or even three times as strong as the standard the physician had in mind when he was prescribing.

Also let us suppose that our patient being critically ill, the doctor prescribed the maximum dose of a standard solution, and our druggist fills it out of his concentrated bottle—well, I need not dwell on the outcome, you may depict it to yourselves.

So being hit times upon times in such a manner, for what I have recounted, I have actually experienced. I came to the conclusion that therapy as we usually get it on our  $\mathcal{R}$  is a snare and a delusion; and I turned more and more to surgery, for its results were more tangible and positive. We did not have to depend upon an intermediary person who only had his gain in view, forgetting the irretrievable damage he was doing thereby, both to patient and physician. As I did not care to place my reputation absolutely in their hands, I began to prescribe less and less, and only those remedies I had to.

There are some large pharmaceutical firms in the U. S. who have, at least claim to have, chemical and analytical laboratories at their factories where each and every drug is tested, and if found to contain an insufficiency of the alkaloid is rejected, that is, is not bought by them. Now what becomes of this mass of drugs? (I have in my possession a pamphlet where one of these firms makes the claim of having rejected thousands upon thousands of pounds of

various drugs.) What becomes of all these drugs! Why, they are simply marked a shade lower than current prices and bought either by unscrupulous firms, and their names are legion, or unloaded on some poor honest druggist for him to work up.

Then on the other hand our great pharmaceutical firms, who test all their drugs first, make good products, but what vitiates it is that each firm, just to be distinct, adopts a different standard, their products are of different strengths, and how is a physician to remember all these various strengths? They disregard the pharmacopeia, claiming to improve thereon, and what happens? Doctor A— gets into the habit of using only factory X's products, so prescribes, this is to save mental wear and tear—and I don't blame him—but Dr. B— uses factory Y's products, and so down the whole line; and the poor honest druggist, honest at first, is forced to keep his shelf loaded with the products of every factory, if he wishes to satisfy every physician, an absolute physical impossibility. What occurs then? Why, it is but a short step to substitute, give some other product, or what is worse, his own decoction, and with all that follows.

The fault, the crime, lies in the cupidity of every person connected with the preparing and dispensing of drugs, of drugs that are hidden under special formulas and trade-marks, from the big manufacturing chemist to the pettiest druggist. But dark as the picture may look, yet none too darkly painted, we have the remedy at hand, and here it is:

It has been known for ages that the medicinal value of plants lay in certain fixed principles, to get which various other products were extracted perforce from the plant, such as coloring matter and inert substances, that gave to the preparation its taste, odor, etc., but were useless. Often two or more active principles were found in one plant, often antagonistic to each other and at times affecting the constitution differently, one beneficially and the other mayhap the reverse, and yet the methods employed of percolation, extraction, etc., did not take this under consideration, and could not separate them. Hence large firms sprang into existence who undertook to put upon the market the active principles, singly as far as possible, of all drugs, and allow you to combine them as suited to each case. This was advance indeed, as great as any made in other lines of medicine, and so was born the remedy for the abuses I have mentioned.

Yet other evils will be mentioned before we are through. Alkaloids and active principles bought in bulk from the factories were not available to the busy practitioner, especially of drugs where an infinitesimal quantity was needed. Nor do they make very appetizing or sightly draughts in that form. This gave me a great deal to think. I found that homeopathy would long ago have died, been buried and forgotten, were it not for the fact that the remedies they gave were so pleasant to take. And here is the main secret why, in spite of all the fallacies on which that school

is based, namely, such as these, the cardinal ones: "That all ailments without exception from ingrowing toe-nail to a case of apoplexy were due to the 'itch'!" "*that like cures like,*" that is, if an attenuation of a drug given to a healthy man produces colic, a greater attenuation will cure a colic in another man; and finally "*that the higher the dilution, that is, the more infinitesimal the amount of drug, the more potent the remedy,*" the potency may become so great that it may become entirely too strong for the patient to take.

This is the tripod upon which homeopathy was built, and as I have said, its survival is chiefly due to the ease and pleasantness with which their remedies or lack of remedies may be taken.

Having come to this conclusion I cast about for some means to meet them on their own ground, and this I found at last in "Dosimetry" or "Alkaloidal Medication," and further I made the discovery that we had in our very midst a factory that prepared these drugs in so palatable a form that competing with our homeopathic confreres became an easy matter, and one which at the same time eliminated the druggist evil, for it enables us all at a very small outlay in money and time to be our own druggist. Now the benefits accruing must be great to induce a physician to give time and money, yet let me assure you it more than repays. The physician's brain being his stock-in-trade, the patient has only a right to as much of it as he pays for, that is, as much as will take to relieve his ailment for which he consults his physician. Beyond this he is using what doesn't belong to him, and is to that extent stealing from his doctor, as the following will illustrate:

A patient came to me on account of some piles that annoyed him a great deal. I proposed operation; he was not ready, had no time, etc., so I gave him a salve for the time being to relieve his suffering. This salve not only relieved but actually cured him; and so pleased was he with the effect that he had the druggist give him a copy of the prescription, which he gave to every friend that suffered with the same ailment.

Some months later, meeting him on the street, he greeted me with this remarkable address: "Why, doctor, that salve you gave me was a cracker-jack. It cured me entirely, and I have given a copy of it to at least two hundred of my friends, and it hasn't failed in a single instance!" This was done by a friend in the fulness of his heart, who did not see that he was robbing his physician, his benefactor.

Some years ago, when influenza was claiming its greatest number of victims, a patient who was left with a cough received a prescription for a syrup. It cured him and it also made the round of friends who needed such a syrup. The same druggist, putting up the syrup a number of times and hearing it lauded generally, conceived the idea of putting it up wholesale, which he did, and simply flooded that part of the country with it, under a copyrighted name, using my very patients in his pamphlets and printed matter as references.

Further, substitution is absolutely eliminated, and you know positively what your patient is receiving, to a fractional part of a grain; you know what you are to expect, or should expect, from your medication. In acute cases, having your medicines with you, you may begin medication at once, losing no time, time which often is valuable and which is invariably lost if the druggist's assistance is needed. This is done chiefly to impress the buyer of the difficulty the druggist meets in compounding the *R.*, hence the price asked is "not half what it ought to be," etc. You leave just sufficient medicines with your patient to last him till your next visit and no more, and rest assured, your next visit will be welcome to replenish the remedies if nothing more. You raise yourself in his esteem by demonstrating to your patient the thorough mastery you have over drugs. They have more confidence in you, and your remedies have better effect, especially when the first few doses are given by yourself. Large drug bills are saved, and this is an important item to the physician, for money thus saved is likely to be used in paying the doctor's bill.

Then you have the satisfaction of knowing that his prescriptions are prepared just as he wishes to have them. The use of inert drugs, mistakes of compounding and giving the prescription to the wrong person, are things of improbable occurrence. When the physician is also the dispenser, copies of his favorite prescriptions are not passed through the community and refilled for the benefit of the druggist and of the neighborhood; neither are his prescriptions scrutinized and commented upon. His daily business, represented by the number of prescriptions he writes, is not a subject for drug-store conversation. The nature of his patient's sickness is not exposed, and the family is no longer subjected to such questions as "what is the matter?" or "who is sick?" delicate questions under some circumstances. In short, the doctor has the control of his practice; he shields his patients from harm, the family from interrogation, and his prescriptions from comment.

About fifty years ago Prof. Burggraeve, of the University of Ghent, conceived the idea of administering in disease, according to certain simple rules, the active principles of plants prepared in granules. Because the medicines were "mathematically measured" in small doses, the name "Dosimetry" was applied to distinguish this method of prescribing from others then in vogue. It is not claimed that dosimetry is a new system or that it is a complete practice. The active principles of plants which have been used for ages in cruder form are prepared in granules. This is done for the purpose of convenient dispensing and of assuring accurate dosage. That granules contain accurate doses is evidenced by the fact that uniform results are always obtained, and fatal effects have never been observed. One of the precepts of dosimetry or alkaloidal medication is: "To acute diseases oppose acute treatment; to chronic diseases chronic treatment" (Burggraeve).

These granules represent a minimum adult dose, and in acute

diseases they may be administered every fifteen minutes, every half-hour, or every hour, according to the severity of the attack, until some improvement is manifested. The medicine should then be given at greater intervals. By pursuing this method closely it is simply impossible to overdose your patient. On this account the use of the alkaloids and other active principles and powerful drugs is perfectly free from danger. You must know that in "Dosimetry" alkaloids are not the only remedies employed, for such remedies as resinoids, glucosides, acids, salts of various metals, extracts, and various chemical combinations, and other substances, such as pepsin, iodoform, glonoin, camphor mono-bromate, etc., find also room as valuable remedies in the treatment of diseases.

The "*materies morbi*" is never lost sight of, and every endeavor is made to eliminate and to neutralize it. The cause of disease is always sedulously sought, with the object of applying treatment directly to it. This is called the "*dominant treatment*," which means treatment directed against the cause of the disease; and if the cause is unknown, treatment must be directed against the most prominent symptom. Thus we have what is known as "*variant treatment*"; this is treatment limited to concomitant symptoms, and is discontinued as soon as relief is obtained, while the dominant treatment is continued as long as the disease lasts.

The actual dispensing of granules is an easy matter, while in very young children where a solution is needed it also can be made without the slightest inconvenience. Dr. Shaller, after many experiments, found that the dosage for children, of such drugs as aconitine, cicutine, gelseminine, veratrine, and others, could safely be given as follows. One granule for ever year of the child's age, and one more, dissolved in twenty-four teaspoonfuls of water in a tumbler, and a teaspoonful given every one-half or every hour as indicated. For a child of one year two granules; while a child of six months takes one granule in twenty-four teaspoonfuls of water, and a baby of three months, one granule in forty-eight teaspoonfuls of water.

Of such purity and efficiency have these granules been found, that some have even been given hypodermically without causing any irritation whatever, acting just as tablets specially prepared for the syringe.

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## SURGICAL MEASURES OF RELIEF IN STENOSIS OF THE UPPER AIR PASSAGES.\*

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

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DURING the past ten or fifteen years the discussion of the etiology, pathology and surgical treatment of stenosis of the aerial passages, particularly in children, has occupied an important position in medical literature, both home and foreign.

Yet with all that has been written on this subject, it must be admitted that the profession is in anything but accord on the most appropriate measures, either prophylactic or remedial, in those maladies which jeopardize life through impending asphyxia or apnea.

It was hoped with the application of the invaluable apparatus of Dr. O'Dwyer that, at last, the most formidable obstacles in the way of treatment had been forever removed, that the scalpel and tracheal tube might be laid aside, and that hereafter relief-measures would be as prompt and bloodless as they were efficient and permanent.

But it was soon discovered that, like every other relief-measure, intubation has its limitations; that there is a considerable proportion of cases in which the perforated, laryngeal plug may, when introduced, destroy every possible prospect of recovery. Our aim should be in all cases, to occupy a middle ground—as neither too zealous partisans of the one, nor uncompromising foes of the other. Some would impose so far on the credulity of their brethren as to have them believe that intubation is the sovereign remedy when applied early and skilfully. Others there are, who have cast it aside altogether. Of this latter I saw a practical proof in the Princess Augusta's large ward for children in the Frieriechshah-Hospital in Berlin. Here their experience with intubation had been so unfortunate that they had discarded it altogether. Hence, while we all agree that divulsion of the laryngeal chink through the buccal cavity occupies an important place in surgical therapy, it constitutes but one of our resources. In the controversial side of the question, it is not my purpose, at this time, to enter.

The conditions that give rise to a mechanical impediment to respiration in the upper air passages are dependent on inflammation—infectious, specific, neoplastic and traumatic.

The fundamental principle underlying every phase of treatment, of whatever description instituted, is to secure a patent air passage until nature has removed the barriers to normal respiration. To most safely accomplish this purpose we must depend chiefly on three agencies: First, on constitutional treatment, which is more or less applicable in all phases of laryngeal stenosis; second, on local medicative measures; third, on surgical intervention.

As the surgeon's aid is seldom invoked until the time is passed for internal medication, only the second and third of these agencies will be considered here.

For the first of them, there are but two substances with which I am acquainted, that possess such properties as will commend them in the majority of cases. I may add parenthetically, that unless the patient is on the border line of the moribund state, local measures should be pressed with energy for a short time before surgical intervention is resorted to.

Mercury pre-eminently occupies the first position. First, because of its well-known power as an antiseptic agent; and, secondly,

for its effects on the general system when taken up by absorption through the mucous membrane. It may be administered by fumigation—when calomel is incinerated; or through the spray—when we employ the bichloride solution of a strength varying from 1:500 to 1:3000 according to the age of the patient, its impression on the system, or the urgency of the symptoms. The objections to the employment are the possibility of paralyzing the patient or salivating the nurse or attendant. Besides, though this agent possesses active bactericide powers, it is not a deodorizer.

In many cases of an infectious or gangrenous character extending into the larynx or trachea, the ideal solution is one which is gentle and simple in its application, but energetic in action; one best tolerated and possessed of the greatest affinity for the necrotic residue of diphtheritic or other inflammatory products. To attain this end there is nothing with which I am familiar, which may be administered so continuously as the peroxide of hydrogen medicinal.

An eminent medical authority\* has recently warned the profession not to use this agent in throat troubles, because, as he alleges, it may cause diphtheria itself. This view is totally at variance with clinical experience and with our knowledge of the fundamental etiology of the disease; though we must concede, if an inferior quality be used, or it is employed in too strong solution, an exudate is formed, but this exudate must be rather attributed to its injudicious employment than to any inherent power of the drug to produce such exudate. In all cases, when we employ this gaseous agent we should be assured of its purity and standard strength; hence it is my custom to employ Marchand's medicinal alone, when it can be secured. The inhaler which goes with this medicament, in my hands, in the hospital and elsewhere, has served an admirable purpose in pharyngeal or laryngeal affections. "The immense number of unsophisticated medical men all over this country whose anxiety is for new and effective remedies, and who are stimulated by these miserable surroundings" † may be safely trusted with the best and safest in the matter of chemical solutions, as in the selection of wines, meat juices, proprietary medicines or other pharmaceuticals.

When it appears futile to persist further with local applications and the symptoms of approaching asphyxia are urgent, the time has arrived for prompt surgical interference. It is well known that in tracheotomies the results following depend mainly on two factors, viz., the violence of the constitutional infection, and the manner in which the operation for relief is performed. The former is beyond our control, but not so with the latter. For, with the aid that modern surgery has placed within our reach, the technique of opening the air passages above the sternum has been greatly

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\*Dr. A. Jacobi, Note on Peroxide of Hydrogen, *Archives of Pediatrics*, December, 1892.

† *Ibidem*.

simplified. The elder Gross regarded tracheotomy as one of the most formidable operations known to surgery.

The dangers immediately connected with the surgical technique of a tracheotomy are :

- (1) Those which have reference to pulmonary anesthesia.
- (2) Hemorrhage.
- (3) Shock.

With every one who has ever administered an anesthetic, or seen it given to one with an embarrassed respiration, it is needless to rehearse here the difficulties in the way. In the first stage of anesthesia the little one struggles and strangles so that the anesthetizing agent must be given intermittently. As the second stage of anesthesia is reached a deep cyanosis sets in. With the accession of the third stage the corneal reflexes are paralyzed and the asphyxia deepened so that the operator is warned to hasten on or death will quickly end the scene. But our patient is a child, and it is a matter of common observation that children, proportionately to their age, take a large quantity of anesthetics and come from under their influence very quickly. Hence, under the circumstances here considered, the circulation already toxemic must be further super-saturated with another lethal agent, and along with this, the fear of the patient's returning consciousness hurries the surgeon on with the procedure in which it is always imperative to proceed with caution and deliberation. Anesthesia is, it must be admitted, one of the positive dangers in opening of the trachea.

Without question the next difficulty in this operation is profuse hemorrhage. Here the escape of blood is dangerous in a dual capacity. First, through mortal anemia, and next through leakage into the trachea inducing fatal asphyxia, or by being sucked into the bronchial radicles and causing septic pneumonia. As the trachea in the child is deeply lodged beneath an immense net work of blood vessels which lie immediately under the skin, the deep cervical fascia and over the thyroid isthmus, the division of the deeply situated parts is not unlike the splitting of a saturated sponge. Nevertheless, if ample hemostatic precautions are observed, after the first gush in penetrating the deep cervical fascia, it will be slight and neither will annoy the operator nor endanger the patient.

In May, 1890, Paul Reclus, in the *Gazette Hebdomadaire*, published his remarkable contribution on "Cocaine Analgesia." The year preceding, Prof. W. W. Dawson had presented an able essay, entitled "Bloodless Tracheotomies."\* Although Reclus reported more than two hundred cases in which he had successfully operated under cocaine, he mentioned none for tracheal stenosis. After I had carefully read the essays of both the Ohio and the French surgeons, it occurred to me that, by a combination of both expedients, the ideal tracheotomy operation was at last secured. Within one month of the publication of Reclus' essay I was favored, at the

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\**Jour. Amér. Méd. Assn.*, July 13th, 1892.

Harlem Hospital, with an opportunity of testing for the first time, and estimating the full value of, a surgical procedure which I have designated "Tracheotomy by the Reclus-Dawson Method."

I, personally, claim nothing for myself in connection with this invaluable device, save in evolving a new operation by a combination of analgesia with hemostasis, and priority in being the first to operate by this method and to publish its history and technique. This I did in the *Journal of the American Medical Association*, 1891.

Though I have had four opportunities of employing it in the adult, up to this time I have had but one child, an infant, on which to test its merits. This was a patient of Dr. Murray's but two months of age, which was suffering from submucous tubercular abscess of the larynx. All my patients recovered.

In a nutshell, its technique is as follows: Rigorous antiseptics; a 1 per cent. solution of hydrochlorate of cocaine hypodermically administered after Reclus' plan; the drug hypodermically employed, never to exceed the maximum dose by the mouth. I always douche the surface of the integument, either by a spray from a siphon of carbonated water, or else pure cold water from a height which accomplishes the same end, before I make the first incision. The cocaine injection serves a triad purpose in these cases: first, as an analgesic; secondly, as a cardiac stimulant; and thirdly, as a styptic or hemostatic. In these cases which we tracheotomize for infectious or acute inflammatory obstruction, and in which patency of the opening is but a temporary expedient, I am confident that the best tracheal tube is none at all. In this infant of two months, by passing two sutures through the divided tracheal walls on either side an ample air vent was effected.

I am confident that as the new procedure is more generally adopted, tracheotomy will regain its lost ground. For by it, when it succeeds, deglutination is not interfered with, perfect drainage is secured and the inconvenience and danger always attendant on tubation of any description, is obviated. It is unnecessary to add that by it, too, the dangers of collapse and shock will be minimized.

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## THE TREATMENT OF RECURRENT ATTACKS OF SPASMODIC CROUP—WITH REPORTS OF CASES.

BY MILTON P. CREEL, M.D.,

Surgeon I. C. Railway; Surgeon L. & N. R. R.; Member National Association Railway Surgeons; Member American Medical Association; Member Mississippi Valley Medical Association, etc., etc.

THERE is no affection of childhood which excites more consternation in the breast of the average mother than to awake in the night and find her infant in the throes of croup.

These cases form a large share of the physician's burdens during

the winter months, and the best means at the disposal of the profession for handling these cases should be brought to bear in every instance. The treatment I have thought best to consider under two heads, the treatment of paroxysms of croup, and the institution of such means as will tend to prevent a recurrence of another seizure. The administration of an emetic, one which acts quickly, affords us a safe and satisfactory means of overcoming the paroxysms of croup. Terpeth mineral, alum and honey, ipecacuanha and the other emetics, are all valuable. Often these are slow, however, and the physician is tempted to give an anesthetic. These are safe only in those cases where the heart and respiration are not embarrassed. A patient seen before the dyspnea is very marked, however, may be relieved by having him inhale chloroform to the point of narcosis. The giving of the patient a warm bath has been to me a means of overcoming the paroxysms that has seemed of great value. It tends to relax the patient, and expedite the action of emetics, and sleep and freedom from further attack the remainder of the night generally follows.

To prevent a recurrence of these attacks is a matter of the greatest importance.

A study of these cases, covering a large number of cases, has convinced me that the spasmodic tendency of the larynx is due to existent bronchitis, and when this is removed we shall have no further seizures.

My success in treating these cases, in bringing about a cessation of these nightly visitations of croup, has been secured by treating the accompanying bronchitis.

This treatment consists of the administration of remedies which the case in hand may suggest. I have found that in these cases the patients have a bronchitis attended with copious mucous discharge. When these patients vomit we are often surprised at the secretion of mucus that has gone on.

If these patients are poorly nourished they must have cod liver oil, and even the hypophosphites. When, however, there is no trouble on this score we should not give the remedy.

One agent which has been most beneficial to me has been the balsam of copaiba. This agent has been depended upon by me for a number of years and has not failed to bring me the most satisfactory results. I give it in doses of one to three drops four times daily to a child five years of age. I give it in an emulsion, which is sweetened and flavored and children take it without any reluctance.

This remedy is continued as long as there is any evidence of bronchitis present.

Conjoined with this remedy I have the mother have a vaporesolene lamp burn in the bedroom of the patient every night. This vapor is antiseptic and exerts a curative action on the inflamed tubes, and I have come to value it, and make it an essential part of my treatment.

The clothing of these patients should be warm, and the chest and neck must be thoroughly protecteu.

One point I never fail to emphasize is that these children's feet must be adequately protected; not only during the day must this be looked after, but if there is no fire kept in the bedroom then we must have the feet covered at night. This can be done by pinning the bed-clothes, or keeping stockings on through the night.

A great many mothers provide their children with long night-gowns which are heavy enough to protect the feet, and are so long that they cannot be kicked off.

L. Y., aged two and one-half years, had had recurrent attacks of spasmodic croup for the past two months. Examination revealed an existing bronchitis. This patient took an emulsion of balsam copaiba four times daily, a teaspoonful of which contained one drop of balsam copaiba.

Vapo-cresolene vapor was inhaled every night, and care was taken to have the patient provided with a long, warm nightgown to protect the child's feet.

On this treatment the patient got along well and after the second week had no further attacks of croup.

This was a well-nourished child, and took no cod liver oil.

Beatrice I., aged 2, had attacks of croup that were very distressing to her mother, and had had an attack almost every night for a month.

She was given the copaiba, and slept in a room where the vapo-cresolene pervaded the atmosphere.

On this treatment she got along well, and was discharged cured in eighteen days, and had no more attacks during last winter.

Willie, aged 4, had had attacks of croup for the past two years. Examination revealed bronchitis.

On the treatment given in the above case this patient made a complete recovery in six weeks.

This patient was not well nourished, however, and I had him take cod liver oil for five or six weeks.

These cases are briefly told, but I have striven to give results rather than unimportant, or commonplace detail.

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## ON THE MEDICINAL USES OF HYDROGEN PEROXIDE.\*

BY E. R. SQUIBB, M.D., BROOKLYN.

(*Extract.*)

THROUGHOUT the discussion upon diphtheria very little has been said of the use of the peroxide of hydrogen or hydrogen dioxide, yet it is perhaps the most powerful of all disinfectants and antiseptics, acting

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\* Read before the Kings County Medical Association, February 6th, 1889, during the discussion on diphtheria, and published in Gaillard's *Medical Journal* for March, 1889, p. 267.

both chemically and mechanically upon all excretions and secretions, so as to thoroughly change their character and reactions instantly. The few physicians who have used it in such diseases as diphtheria, scarlatina, small-pox, and upon all diseased surfaces, whether of skin or mucous membrane, have uniformly spoken well of it so far as the writer knows, and perhaps the reason why it is not more used is that it is so little known and its nature and action so little understood. Until within the last few years, except in a few manufacturing processes, it was chiefly known as a chemical curiosity, rarely seen because difficult to make. . . .

In order to use it intelligently both the pharmacist and the physician must know something of its nature and properties. The name hydrogen dioxide expresses its composition, and its formula,  $H_2O_2$ , represents this name. Hydrogen monoxide,  $H_2O$ , or water, can under certain conditions be made to combine with a second molecule of oxygen, the result being a water-like liquid,  $H_2O_2$ .

This second atom of oxygen is very loosely combined, and the compound molecule is always on a strain to break up into water and oxygen, and when it breaks up, either slowly or rapidly, the oxygen separates in that nascent or most active and potent of its conditions next to the condition known as ozone. It is in the change of this breaking up into the water and active oxygen that the latter element exerts its power, and simple contact with organic matters, which are themselves of complex nature and in condition to be changed, is sufficient to break up the dioxide and liberate the active oxygen. For example, some albuminoids are instantly changed by contact with hydrogen dioxide, as is shown by rinsing the mouth with dilute solution, when the albuminoid matters of the secretions are at once coagulated. Then, as all virus is albuminoid, whether propagative or not, it is destroyed, or by coagulation rendered inert by simple contact with this agent, just as it is by contact with corrosive sublimate. This simple experiment of rinsing the mouth with a dilute solution of hydrogen dioxide and examining the discharge of liquid, can hardly fail to convince one of the destructive potency of this active oxygen on some albuminoids, and of its thoroughly cleansing effects upon the mucous surfaces.

Now, if diphtheria be at first a local disease, and be auto-infectious—that is, if it be propagated to the general organism by a contagious virus located about the tonsils, and if this virus be, as it readily is, an albuminoid substance, it may and will be destroyed by this agent upon a sufficient and a sufficiently repeated contact. All kinds of spray and injection apparatus can now be easily obtained with fittings of hard rubber or glass, and such only should be used.

A child's nostrils, pharynx, and mouth may be flooded every two or three hours, or oftener, from a proper spray apparatus with a two-volume solution without force, and with very little discomfort; and any solution which finds its way into the larynx or stomach is beneficial rather than harmful, and thus the effect of corrosive

sublimate is obtained without its risks or dangers. Adults and children old enough to gargle the pharynx and rinse the mouth will get a better effect in this way, equally without much discomfort, from a three-volume solution; and this applies not only to diphtheria, but to scarlatina and other conditions of the mouth and throat which require cleansing and disinfecting. As vaginal injections in cases of uterine cancer, etc., the strength must be increased until the disinfectant effect is obtained. A copious flushing out with a one-volume solution will often be sufficient. When wetted cloths are laid over external sores an over-covering of oiled silk should be used.

As, in passing through several hands after leaving those of the maker, a little mismanagement may spoil the solution, some easily applicable tests of quality and strength are needed.

So long as the solution will yield any active oxygen at all, it will give this off with active effervescence when poured onto a crystal or two of potassium permanganate. A solution containing only a quarter of its volume will give an effervescence so strong as to be misleading, and therefore a quantitative test is needed. The following is a modification of a testing process given to the writer, with much other useful information by Mr. Charles Marchand, of New York City, one of the oldest and best makers of peroxide of hydrogen, and one who supplies it to all parts of the country. . . .

If this agent is to be generally used in the treatment of diphtheria, as it well deserves to be on well-established principles of action, it is very important that it be freely applied in the earliest possible stages of the disease, or while it is yet local; and therefore the agent should be easily and properly accessible in places known to physicians, and not over a mile apart throughout the city, and in hands which know the agent well, and know how to keep it from change and to dispense it on physicians' orders.

If all pharmacists should undertake to keep it—or even all the prominent ones—it would soon share the fate of many other important medicines.

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## THE BACTERIA IN EXISTENCE.

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MICROBES and bacteria are the bugbear of modern life. Many people are fretting themselves to death over them. They have become reasonably reconciled to dirt, extracting solid comfort from the maxim that every man must eat his peck of it, and there is the end of the matter. But microbes and bacteria? Is not their prolific power simply infinite, and to secure an honest living for their billionfold offspring must not the fond parent set up promising nests in the human organism for breeding germs of consumption, diphtheria, rabies, smallpox, and like nutritious diseases for the promotion of the health and vitality of some

species or other specially adapted to thrive on them? Filters do no good against such infinitesimal creatures. They go through filters as easily as through sieves. It is even hinted that some of them are actually invigorated by being boiled alive. And so people are at their wits' end to know what to do. To increase the nervous panic, certain eminent men of science are at this very hour coming forward with theories that seem to cut off the last avenue of escape. For example, numbers of extra careful people have, at considerable expense to themselves, got into the habit of drinking none but distilled water, while on all the ocean liners and on the warships very costly apparatus has been introduced to furnish this exclusively for their passengers, officers and crews. And now, in the face and eyes of all this, and in an authoritative medical review, the *Deutsche medicinische Wochenschrift*, comes forward one Dr. Koppe, with an elaborate article, flying the flag of the astounding pronouncement, "Pure Water is Poison." By chemically pure water he means, of course, distilled water. That this is as distasteful to drink as the white of an egg is to eat, everybody knows. But then, what one lost in pleasure was supposed to be made up to him in health. On the score of this reconciling idea he stood ready to gulp it down. Not so, says Dr. Koppe. To get back to where it was before it was distilled, what does the water at once set to work to do? Why, to leach out of the system, and especially out of the more delicate cells, the very salts and organic matter it previously contained, and which really rendered it palatable. Under this process of assault and highway robbery, the cells perish, and the most destructive results are set on in the whole economy of the body. This is certainly discouraging. To pay out one's hard-earned money for making water chemically pure, only to find it taking a bee-line to make itself chemically impure out of the very substance of one's epithelial cells, this seems as a total abstinence man converting a tippler from his drams only to find that the tippler has seduced him into the evil habit of indulging in ardent spirits himself. And now the very water which, through the fiery distilling process, was for the once rendered incapable of generating bacteria, acquires fresh organic matter, enough to feed lively colonies of them on, until, through the ferment they set up, it becomes sparkling and refreshing as Apollinaris. Every man must eat his peck of dirt. The doctrine has long been accepted and has led to great peace of mind. Every man must eat his peck of bacteria. This doctrine, though reposing on equal authority, has not yet been quietly acquiesced in, and so found to bring no rest to the soul. Not a pint of them! insist too many rebellious spirits. It is all in vain. No! the true creed to embrace is not that of perturbed and anxious warfare with an invisible foe whose name is legion, but that of the brave cultivation of a vigor of health and tide of spirits that will have enough to spare for the bacteria to get a modest living out of, and still leave a surplus for one's own requirements. Bacteria—and the

woods are full of them, not only in the infusorial, but in the social, moral, political, sectarian form—will do no harm to anyone in whose veins is circulating a full flow of ruddy blood, and in whose intellect and heart is beating a strong firm will of good. Rather will they serve, as they do in yeast, to set on a needful ferment in the dough of his nature, which, through the quantity of fixed air imparted, shall enliven his wit and fancy, his love and spirits. A life in the positive, and not in the negative, this, then, is the bracing lesson taught by the psychologists of to-day. It is a poor apple-tree, they insist, that cannot afford some sustenance to the inevitable caterpillars and still more inevitable plant life, and still retain vigor enough to bear half-a-dozen barrels of sound russets or Baldwins. In an equally bad way is the man who does not make blood enough to stand the suction-pipes of half-a-dozen mosquitos, and yet keep the reservoir full enough for private use. If a man is to feel himself drained out of all his intellect because he has fallen in with a few exhausted bores, or of all his piety because he has heard a few dull and lifeless sermons—a fig for his intellect or religion! Bores and dull sermons are a part of life, to be shed as a duck's back sheds water—to use an entirely original simile. It is lubricating matter the duck individually secretes for anointing his feathers with that keeps him warm and dry in the wet, and saves him from getting bedraggled and drawn down beneath the surface. The duck attends to the positive and simply obeys the scripture command to keep oil in his lamp. No need of his worrying about the negative. The oil duly provided, the water runs off of itself without ever soaking in. A leading philosopher made it his rule simply to refuse any attention to the tedious, commonplace, ugly side of life. What is the use of it? he argued. It merely depresses or irritates or degrades the mind. No musician ever became a musician by dwelling on discords or false notes, but by dwelling on melodies and harmonies. These trained his ear and attuned his soul for the production of vocal or instrumental beauty. If one loves harmony he instinctively sheds discord. If he loves sense, charm, wit, imagination, he instinctively sheds folly, awkwardness, stupidity, prosaic dead level. Keep the best company and all other will be repulsive. "Don't waste your time fighting bad company," said Professor William James, in one of his recent admirable "Talks to Teachers on Psychology." Spinoza long ago wrote in his Ethics that anything a man can avoid under the notion that it is bad he may also avoid under the notion that something else is good. He who habitually acts *sub specie mali*, under the negative notion, the notion of the bad, is called a slave by Spinoza. To him who acts under the notion of good, he gives the name of freeman. See to it now, I beg you, that you make freemen of your pupils, by habituating them to acts, whenever possible, under the notion of good. Get them habitually to tell the truth, not so much by showing them the wickedness of lying, as by arousing their enthusiasm for honor and veracity.—*Tor. World.*

## TORONTO BRANCH OF THE WALKER-GORDON LABORATORY OF BOSTON, MASS.

BY H. P. H. GALLOWAY, M.D., TORONTO.

ON Saturday, February 17th, through the courtesy of Mr. W. E. H. Massey, a number of Toronto medical practitioners paid a visit to the Dentonia Park Farm. This celebrated model farm, covering 240 acres, is situated at East Toronto, and is an ideal agricultural establishment, apparently as near perfection as scientific knowledge and unstinted expenditure of money can make it.

It was the Dentonia Milk Laboratory, however, which the visitors were particularly interested in inspecting, and a couple of hours were spent most pleasantly and profitably in examining the details of the scientific production and handling of milk.

During the past ten years sanitary science has made progress in regulating some of the more important supplies for human life. But it is noticeable that very little improvement has been made in the production of milk.

Milk, as usually sold to-day, is about as suitable a vehicle for the transmission of disease as it was before science revealed the dangers that lurk in it.

Science in the dairy has stopped at cheapening and improving the manufacture of butter and cheese. It has not been, with rare exceptions, extended to improving the milk production either of the farm or for the cities.

The milk supply of Toronto comes from nobody knows where, and, very largely, is outside the control of the City Board of Health, except as to its solid contents and gross adulterations. But the general sanitary condition of barns, milk-houses, and the transportation of milk is still practically unregulated.

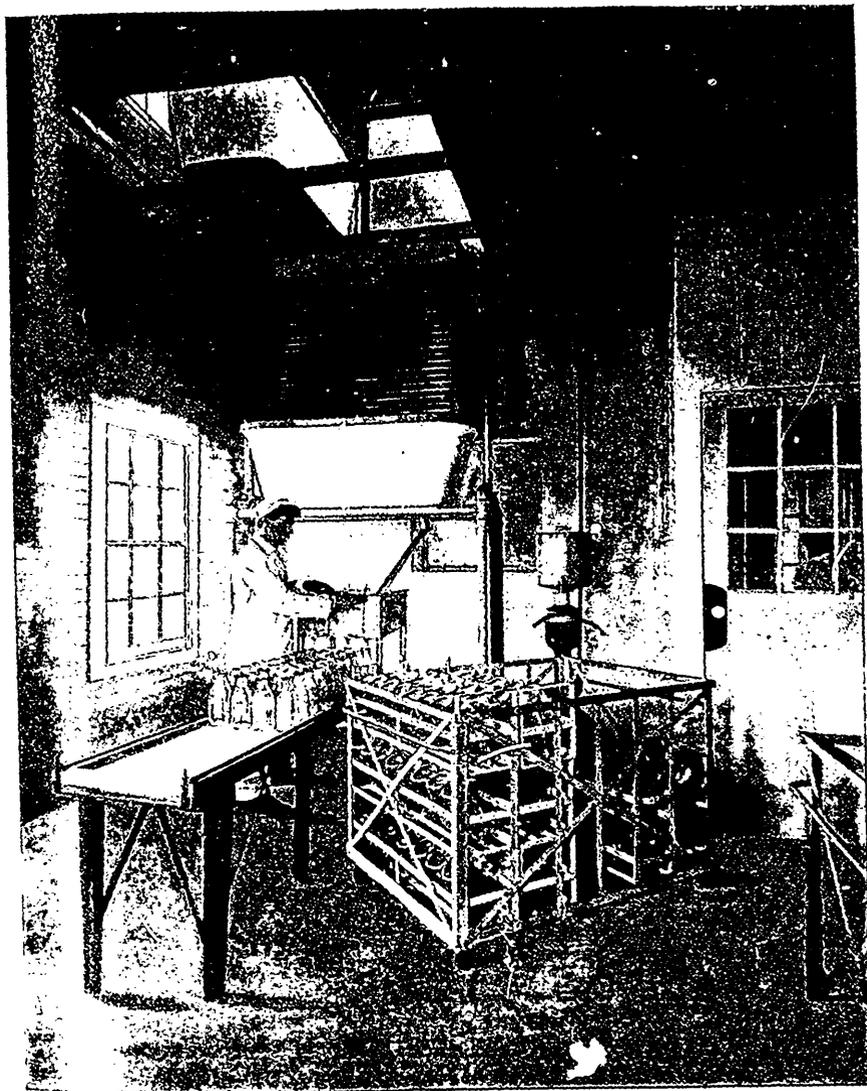
Two herds of cows are to be found in the stables—Jersey and Ayrshire—and the animals are beautiful specimens of these respective breeds. The stables are model sanitary homes for the perfect care of the animals, clean and perfectly ventilated by a system which insures a constant supply of pure air direct to each stall. Manure is collected as rapidly as it is voided, and is removed twice daily 300 feet from the barns by an overhead trolley system. Liquid manures are conveyed from the stables by iron pipes with leaded joints. The cows are cared for almost like children, are fed regularly and scientifically and are kept scrupulously clean. No wonder they were so gentle and looked so contented! Each animal, before being accepted, is carefully tested with tuberculin, the test being repeated should the slightest suspicion make this necessary. Should any animal appear ill it is at once isolated and receives competent veterinary care, in fact, the herds are under the careful supervision of a competent veterinary surgeon, who presents

to Mr. Massey at regular intervals certificates setting forth the condition of the cows and their surroundings. The attendants are also regularly examined by a physician, and their condition of health reported. Before each milking the cows are thoroughly groomed and cleaned, and the attendants don white suits taken directly from the steam sterilizer. The milk as it comes from the cow is received, not into open pails, but upon a fine wire gauze strainer let into the lid, thus absolutely preventing accidental contamination with hairs or any gross filth. The milk is at once taken to the laboratory, where it is refrigerated and aerated, then bottled by the most modern scientific methods. The milk-room, stripped of its apparatus for handling milk, resembles nothing so much as the modern, aseptic, surgical operating room of a hospital. The walls are tiled, the floor is made of asphalt, kept damp; the air is filtered through gauze, and in summer is washed with spray—an exhaust fan, driven by electricity, changing the air every few minutes. The milkers are not allowed to enter the milk-room, but pour the milk into a filter, whence it passes through the wall to the solid white porcelain receiving vats inside the milk-room.

The presiding genius of the laboratory is Miss Lottie Shuttleworth, a graduate of the Agricultural Department of the Ontario Agricultural College, Guelph; she has also taken the Walker-Gordon course in Boston. In her spotless white uniform, in a place that is so much like an operating room, and with sterilizers at work close by, it is difficult for a medical man to keep from involuntarily addressing her as "Nurse."

It is Mr. Massey's ambition to produce milk that shall be practically sterile without actually sterilizing it, and the bacteriology of the milk receives careful attention. One illustration will serve to show the care that is taken to maintain asepsis; as the delivery wagons return to the farm, the baskets containing the empty bottles are immediately transferred to a large sterilizer. They are afterwards washed by hand in three changes of fresh spring water, of which there is abundant supply, and then sterilized a second time before being used. A special paraffin-coated disc is used as a stopper for each bottle. For those who desire it, sterilized or pasteurized milk can be procured in 8-oz. tubes. But to the visitors the feature of greatest interest was undoubtedly the fact that this laboratory is a branch of the Walker-Gordon Laboratory, Boston and that modified milk for the scientific substitute feeding of infants is now available to the physicians in Toronto and within a radius of one hundred miles from the city.

This method of feeding infants artificially has been brought so prominently before the profession by Dr. T. M. Rotch, of Boston, and others, and its value has been so well established by the observation of a large number of physicians in different places, that the profession in this city are to be congratulated at now having at their service facilities for securing modified milk which are



### DENTONIA MILK LABORATORY

Showing the solid porcelain receiving vats, cooler and aerater, turbine cream separator, bottle filler, bottle car, etc.



### DENTONIA MILK LABORATORY

Showing apparatus for modifying milk. This room has tile side-walls, asphalt floor, glass table and shelves, and solid porcelain sink.

second to none. The milk is modified upon physicians' prescriptions only, and is delivered in tubes of such number and containing such quantity as may be ordered.

Modified milk is not a proprietary or manufactured food, but it is a method by which fresh cow's milk, while still remaining a fresh milk, is changed as to its constituent elements of fat, milk-sugar, and albuminoids to suit the digestion of infants or invalids.

Infant feeding in all its scientific forms absolutely demands a perfect milk for its basis, so that the same care should be exercised in the choice of milk for modifying as ought to be employed in the selection of a raw, whole milk for the table and the nursery. This caution is necessary because certain misinformed or mercenary persons in the Eastern States are advocating the use of "any milk so long as it is freshly milked" or any milk at all so long as it is "pasteurized" or "sterilized." No more dangerous advice can be given to mothers.

No milk is suitable for modifying, or for the nursery, that is not *quite* pure and safe. "Sterilizing" and "pasteurizing," so called, cannot make an old, impure milk valuable: but, instead, it remains dangerous for infant feeding. It is now ascertained beyond question that the chemical poisons generated by certain bacteria are as potent after sterilizing them as before. Heat kills some bacteria, but it does not destroy the poisons generated by them. If milk is sterilized after the poisons have been generated, it is as dangerous as unsterilized milk may be.

It is for these reasons that the physicians who know the most about infant feeding are so strongly of the opinion that the selection of a perfect milk is quite as important as the form of its modification.

But this is also certain, that the form of modification is equally important. It is as foolish to say that a perfect milk can be successful if wrongly or imperfectly modified, as to say that perfect modification will be successful with an unsafe milk, even if it be "fresh." The experience of the Walker-Gordon laboratories, in feeding many thousands of infants, absolutely proves that *a good milk and a good method must go together.*

In laboratory modification—modified milk—it is believed that as great a degree of accuracy should exist as is found in the production of drugs or in the filling of prescriptions for medicines, and the method is based upon two things, namely, an accurate basis in milk and cream, and a mathematical and mechanical method that admits of no mistakes in the formula plans.

Prescription-feeding, from the Walker-Gordon laboratories, has been successful as a medicine-diet for sick infants and children, but the chief uses of the laboratories have been the regular feeding of healthy infants from birth. The process is necessarily an expensive one, the cost of feeding an infant being considerably more than by any of the patented artificial foods, but the results prove this method incomparably safer and better.

Milk containing a definite percentage of fat for home modification may also be procured upon physician's order. Nearly all medical men who have mastered the subject of modified milk, as it is taught by Dr. Rotch, and who have had the service of a Gordon-Walker laboratory to help them in putting the modified milk theory into practice, are unanimous in the verdict that milk so modified as to meet as nearly as possible the needs and the digestive capacity of individual babies, represents the highest point yet attained in the substitute feeding of infants. Mr. Massey's enterprise in establishing this laboratory in connection with his farm cannot be too highly commended, and we have no hesitation in regarding it as much more a work of practical philanthropy than a commercial venture.

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### SURGERY IN SOUTH AFRICA.

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SIR WILLIAM MACCORMAC, the president of the Royal College of Surgeons, who volunteered his services for the South African war, sends an interesting account to *The Lancet* of his experiences with wounds inflicted by the Mauser bullet. The cases he reports are from the Wynberg Hospital, near Cape Town:

"I saw a large number of injuries inflicted by the Mauser bullet, which is remarkable for the small external wound it produces. In three-fourths, if not even a larger proportion, it was impossible to tell the exit from the entrance wound, they were so similar in appearance. Some were quite healed, but most were covered with an adherent black scab slightly depressed and saucer-like. Doubtless some contraction had taken place in healing, but the size was much smaller than the end of a leadpencil and quite circular. A few exit wounds were slits due to slight deflection of the bullets in their passage. These were already healed like an incised wound, and showed a linear cicatrix about half an inch long. Probably most of these injuries were inflicted at a range of 1,000 yards, although the men said 500 was the distance in very many instances in which they had been hit. One man, a Gordon Highlander, had his elbow smashed up into small pieces. He believed it was an explosive bullet, but it may have been a Mauser at short range, for he was hit at a distance of 300 yards. The Boers, however, use other weapons. A Martini-Henry bullet was removed from the ball of a man's thumb yesterday—an almost solitary example of a lodged bullet. They also fire hollow bullets, which would have explosive effects. The Mauser bullet weighs, I believe, about 2.3 grains. Our Lee-Metford is a little heavier, about 2.7 grains, and does not carry so far by some hundreds of yards, while the old Martini-Henry is nearly double in weight, or some 4 grains. In the wards I noticed quite a number of perforating chest wounds, and some remarkable perforations of bone without any solution of

continuity or complete fracture; in one instance there was a perforation of the shaft of the tibia at the junction of the upper with the middle third of the bone, an injury which my previous experience would pronounce quite impossible.

"There were several cases in which the bullet had entered the groin and emerged through the central portion of the buttock, the direction taken making it difficult to conceive how the femoral vessels, the sciatic nerve and artery, the femur and other important parts had escaped all injury. There were four abdominal injuries. In two cases severe hematuria followed, and the direction of the wound suggested injury to the bladder. In another the bullet entered the buttock and emerged in front a little below the ribs. In a third instance the abdomen was traversed in a similar direction. There were hematemesis and bloody stools for three days without any further symptoms. In another case the bullet apparently traversed the abdomen from the right linea semilunaris in front at a point a little above the level of the umbilicus to emerge two inches to the right of the lumbar spine. There were no symptoms in this case of any kind.

"I will mention in the briefest way some of the cases I saw during my visit to the hospital at Wynberg:

"1. Bullet entered the chest on left side close to margin of sternum, just below the sixth rib. It must have passed between the internal mammary artery and the bone near its division. The ball then traversed the lung and emerged at the tenth rib, about four inches from the spinal column; rapid convalescence—practically no symptoms; wounded on October 21st.

"2. Bullet entered just below inferior angle of right scapula, between seventh and eighth ribs probably, and emerged just below centre of right clavicle; result similar to Case 1.

"3. Bullet entered opposite centre of infrascapular fossa of right scapula, emerging through rib in front three inches below middle of right clavicle. Man had hemoptysis for a week; no dyspnea or other symptoms.

"4. Bullet entered level of fourth dorsal vertebra, about two inches from spine on right side, emerged two inches below centre of right clavicle. Man spat blood for a week; says he felt no inconvenience otherwise.

"5. Perforating wound of surgical neck of left humerus with some detached fragments. Diagram shows extent of damage clearly. The fragments were removed; patient convalescent.

"6. Wound across knee; bullet entered one and a half inches behind, and on level of head of right fibula, emerged on inner side opposite middle of internal condyle. Wounds healed; joint mobile.

"7. Bullet entered anterior aspect of thigh two inches above upper border of patella and in the middle line, emerged over the inner tuberosity of the tibia, which appeared to be grooved by it. Wounds healed, joint mobile, yet it is difficult to suppose the joint escaped.

"8. Bullet entered middle of outer side of right knee and emerged through centre of patella, causing a complete transverse fracture with about a quarter of an inch separation. The wounds had healed and the man had been able to get about, but on the previous day he had fallen and hurt the injured knee, which caused a great deal of swelling. There is no rise of temperature and he is doing well. The joint is fairly movable. This man is a Boer field cornet, Pretorius by name. He is a fine-looking man, with a cheery, pleasant face, and speaks English perfectly.

"9. Bullet entered opposite centre of patella, through which it passed and emerged opposite inner condyle, which was grooved by the ball. All evidence, save the scars of entrance and exit wounds, had disappeared, and the knee was apparently as good as ever.

"10. Scar of entrance wound immediately over the right femoral artery and two inches below Poupart's ligament. The artery can be felt pulsating exactly beneath it. The bullet then passed apparently inside the upper end of the femur without impairing the bone and emerged just posterior to the great trochanter.

"11. Bullet entered in front of, and an inch below the top of the great trochanter, which it grooved and emerged through the middle of the buttock.

"12. Bullet entered anterior surface of thigh at junction of middle and upper thirds, and, passing internally to the femur, emerged through the centre of the buttock. In none of these three last cases had any important structure been damaged, and the wounds were either completely healed or were still covered with the small black scab already mentioned.

"13. In this case the man was wounded on October 21st, and operated on by Col. Stevenson twenty-four days afterwards in the base hospital—viz., on November 14th. He was doing quite well when I saw him and three days later I heard he was practically quite well. The bullet entered from behind two inches below the fold of the axilla and emerged in front just below the anterior axillary fold. When Col. Stevenson saw him he diagnosed a damaged artery from the gradually increasing tense swelling and absence of radial pulse. He made an incision, which had subsequently to be enlarged to five inches, and after turning out nearly a pint of dark clotted blood found a large breach in the vessel where the axillary becomes brachial. When the final portions of clot were removed a formidable rush of artery blood occurred, but this was immediately controlled and both ends of the vessel were securely ligatured. When I saw the man a week exactly after the operation the external wound had healed except where the drainage-tube emerged. The temperature was normal and the general condition excellent. The wound was not quite aseptic from the start, but all went well. There was when I examined him no perceptible radial pulse.

"14. One man had four wounds in the upper extremities caused by the same bullet. It entered the arm on the outer side two

inches below, and then entered the ball of the thumb, smashed the metacarpophalangeal-joint, and finally emerged over the first phalanx.

"15. Bullet entered subcutaneous surface of tibia, a little below the junction of upper with middle thirds of the shaft of that bone. There was a clean cut perforation through the tibia, but no general fracture or solution of continuity, which is very remarkable in the compact tissue. This man says he was hit at 500 yards, but more probably it was 1,000.

"16. Bullet passed transversely across forehead about an inch above level of the orbits: the bone is deeply grooved and along the upper margin there is an elevated fracture parallel to the groove. The man describes himself as being 'knocked silly' for a time, and there was a temporary diplopia, but the wounds at each side of the forehead are healed and he claims to be perfectly well.

"17. Bullet entered right malar bone close to its junction with zygomatic process, passed almost transversely across, and emerged just above the centre of the left zygomatic arch, which it grooved. There was copious bleeding from the mouth and left ear, in which the patient is now deaf. He complained of loss of smell for a time, but this is restored. He is going about the ward, the wound quite healed, and says he is perfectly fit and well. This man was wounded on October 30th, the distance said to be 250 yards."

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### A TUBERCULOSIS CONGRESS.

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A MOVEMENT begun last year in Chicago to organize concerted medical effort against consumption has resulted in the calling of a tuberculosis congress to be held in that city the third Wednesday of February, and to continue through the following day.

In May of last year a world congress on tuberculosis was assembled in Berlin, Germany, and the one to be held in Chicago is in a certain sense a result of the former meeting of distinguished men of the medical profession. At the Berlin congress, attended by delegates from Canada, the United States, Australia, New Zealand, Persia and Japan and the leading countries of Europe the subject was discussed under four heads: 1. Dissemination. 2. Cause. 3. Prevention. 4. Treatment and Sanatoria.

Under the first head it was noted that statistics show that consumption was more prevalent in cities and large towns than in country districts, and that of cities London, Naples and Buenos Ayres had the lowest mortality from this disease, while Vienna, Budapest, Moscow and St. Petersburg had the highest. Most liable to its attacks are those who have the care and nursing of consumptives, those who lead sedentary lives and workers in occupations where irritating dust is constantly inhaled. The disease also pre-

vails among cattle and hogs, hence infected meat and milk are agents of dissemination.

That consumption is due to tubercle bacillus is without doubt, as is also the fact that everyone having the disease becomes to a greater or less extent a centre of dissemination—hence the value of sanitariums, of which, since the crusade against consumption started, Germany has erected eighty-three. A number are also in operation in Canada, the United States and other countries.

Among remedial and preventive agencies direct sunlight, putrefaction and desiccation soon destroy the germs, and these facts point the way to the treatment of the disease. Cities, also, in Canada and in some other countries have aided in the work of prevention to some extent by municipal regulations or directions against expectoration in public places, such as street cars, railway stations, etc. The movement has also shown the imperative necessity for better regulation of factories and other places where many human beings are crowded together at work under unsanitary conditions. Health departments have in many instances provided against the spread of consumption from articles of food by applying the tuberculine test to meat and milk. The latter should be sterilized and thorough cooking of meat is also an aid.

As to treatment the eminent specialists at Berlin congress had little new to say. The disease, of course, should be attacked in its earlier stages. Open air, sunlight, rest, and dry soil for the home, good digestion and contentment and an abundance of strong food are recommended.

It is to be hoped that the coming congress in Chicago may add at least to the general knowledge of the world in regard to the dissemination and treatment of this terrible affliction. One good effect at least will be the direction of public attention to the disease, which is one of the most destructive and also the most difficult with which medical science has to deal.—*Selected.*

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DR. ALEX. MCPHEDRAN expects to move into his magnificent new residence on Bloor Street West about May next.

DR. E. H. STAFFORD, of the Asylum for Insane, Toronto, who was recently granted six months' leave of absence from the Ontario Asylum Service by the Government in view of the havoc wrought upon his health by the long-continued confinement of his position in the Institution, is spending the remainder of the winter at Bocas del Toro in the West Indies, where we trust he will be much benefited by the climate and return to Canada completely restored to his wonted health. Colonel Bell, of Peterboro, has been appointed to the position vacated by Dr. Stafford.