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CONTENTS

	PAGE		PAGE
ORIGINAL ARTICLES		an Antidote for Morphine Poisoning.—Alcohol v. Snake Poison.....	
Inhalations in Diseases of the Lungs—By Price Brown, M.D., L.R.C.P., Toronto.....	97	MIDWIFERY.—Early Signs of Pregnancy.....	110
Sub-Surface Irrigation Drainage—By Edmund Burke.....	100	DISEASES OF CHILDREN.—Surgical Treatment of Rickets.—Glycerine Injections in the Diarrhoea and Prolapse of Children.....	111
EDITORIAL		CLIMATOLOGY.—Aiken, South Carolina, as a Health Resort.....	1
Advantages of an Early Operation in Cancer.....	103	HYGIENE.—A Simple and Efficient Filter, by F. A. Castle, M.D., New York.—The Public Schools.....	102
Typo-Malarial Fever.....	102	STATE MEDICINE	
INDEX OF PROGRESS		Report on Diphtheria in the Frontier Townships in the Northern Districts of Ontario	
MEDICINE.—Is Inflammation of Peyer's Patches Proof Positive of Typhoid?—Epidemic Diphtheria.—The Bacillus of Diphtheria.—Self-Asphyxiation in the Treatment of Insomnia.—Increasing Mortality from Cancer.—Proper Names in Medicine.....	105	REPORTS OF SOCIETIES	
SURGERY.—Subdural Abscess of the Brain.—Sarcoma of the Vagina in Children.—Ingenuity in Minor Surgery.....	107	Toronto Medical Society.....	
THERAPEUTICS.—The Relative Value of the Bromides.—A Pleasant Purgative for Children.—Cascara in Rheumatism.—Strychnia	107	CORRESPONDENCE	
		From Our Southern Correspondent. Delayed Delivery of the Second Child	
		GENERAL NOTES	

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VIDEO MELIORA PROBOQUE

EDITOR: P. H. BRYCE, M.A., M.D. L.R.C.P.&S., EDIN.
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ORIGINAL ARTICLES.

INHALATION IN DISEASES OF THE LUNGS.

BY PRICE BROWN, M.D., L.R.C.P., TORONTO.

FOR many years the subject of inhalations, in reference to the treatment of diseases of the respiratory tract, has received a large share of medical attention. A considerable part of this, however, has been of a general nature; and considering the immense army of scientific investigators in the arena of medicine, a comparatively small number have given the subject that careful and thorough investigation, which its therapeutic value demands.

When we remember that the diameter of the air-cells, distributed throughout the human lungs, is about twenty times as great as the calibre of the capillaries, which are distributed on their parietes; and that the total number of these alveoli, is in the neighborhood of six hundred millions, we can form some conception of the magnitude of surface which offers itself for direct and immediate therapeutics. That the epithelial lining membrane of the lungs is adapted to direct local treatment, is proved by the fact of the substitution of gases in the ordinary act of respiration; and also by the rapidity with which anæsthesia is produced, when chloroform or any other anæsthetic is administered. Still the amplitude of the opportunity should make us all the more vigilant against the dangers of empiricism.

As far back as 1849, the proprietor of one of the medicinal springs in France, arrived at the conclusion, that, if the waters possessed virtues when taken into the alimentary canal, their efficacy would be increased, if taken likewise into the air passages. He therefore adopted the plan of projecting a number of small jets against the wall of a room prepared for the purpose. By this means the water

was broken up into a state of minute atomization; and the patients, protected by rubber suits, were ushered into the room thus surcharged with the misty atmosphere. The idea being favorably received by physicians, was at once added to their armamentarium, and gave rise to many of the present systems of atomization, which render topical treatment by atomized fluids, cheap and simple, if not as efficacious as the original French method.

The internal treatment of chest affections by inhalations has of late years gradually extended its bounds. Rumboldt's spray tubes date back as far as 1857. Esch-Cohen advocated the use of compressed air in his treatise on inhalation published in 1867; while compressed and rarified air, medicated vapors of diverse formulæ, and various methods of application, have been used from that time until now, by Sajous, Mackenzie, Bosworth, Shurly, Salter, Browne, Platt, Major Donaldson, and many others.

The pneumatic cabinet, brochures upon which were published by Isaac Platt of St. Mary's Hospital, Brooklyn, F. Donaldson of University of Maryland, and Martin of Johns Hopkins University, all in 1886, promises to be a valuable addition to the appliances of the physician of the future, particularly in hospital treatment; and these admirable little treatises, on the administration of compressed and rarified air, are inestimable additions to our literature on the subject.

Pneumatic differentiation is the term they apply, to different pressures upon the air surrounding the body, and that entering the lungs. As described by these authorities, the differentiation may be positive, negative, and alternate. Positive, is where the entire air of respiration is maintained at

a greater pressure than that immediately surrounding the body, negative, is where the entire air of respiration is maintained at a less pressure than that surrounding the body—the exact reverse of the former; while alternative differentiation is a combination of the two—in inspiration, the air entering the lungs being of the greater pressure; while in expiration it is of the less.

The pneumatic cabinet is intended to produce these differentiations. It is an air tight box of sufficient size to allow an adult to be comfortably seated within it. The front is of glass, and so arranged as to be instantly opened if required. The cabinet is provided with a bellows arrangement, to rarify or condense the air within, and a tube by which the patient can breathe external air, medicated or otherwise as required.

To give the patient the benefit of positive pneumatic differentiation, he is placed within the cabinet, and the air within rarified, while he is allowed to breathe through the tube the outside air of natural density. As a consequence, the lighter pressure of the atmosphere round the body is more than balanced by the natural air within the lungs; the air-cells become fuller; the lungs expand to an unusual extent; and the circumference of the chest is increased. These are the results during inspiration. On the other hand expiration loses to some extent its ordinary passive quality. More exertion than usual is required to expel the air; while at the end an unusual amount of residual air is left within the lungs. That this residual air is larger in quantity than during ordinary respiration, is proved by restoring the rarified air in the cabinet to its normal density, as the occupant completes his expiration; when he is able to expel a still further amount; something that it was impossible for him to accomplish before the equilibrium was restored.

The effect of this process on respiration is, that the lungs will be more fully distended during inspiration than in the normal state; and less completely contracted during expiration; while extensive or long continued positive differentiation would undoubtedly produce emphysema.

On producing negative differentiation, the results would in a large measure be of an opposite character. The pneumatic cabinet, occupied by the patient would be filled with compressed instead of rarified air; and breathing the outside atmosphere

of normal density, the increased pressure upon the walls of the chest would render inspiration more difficult; while under the same conditions, expiration would be more complete—the residual air being reduced to a minimum. As a result of this procedure, the lungs might become more contracted; while at the same time, the inspiratory muscles would be strengthened by the unusual effort.

Alternate differentiation would be attended by a combination of both of the above results. By special arrangement in the cabinet, inspiration would become more complete, and expiration more exhaustive, the lungs as a consequence being more thoroughly and fully ventilated.

Leaving the air passages, let us for a moment consider the effects of pneumatic differentiation upon the circulation. Any diminution of peripheral pressure, the air respired being normal, would induce an extra flow of blood from the thorax to the outlying portions of the system; while it would retard the return of blood to the heart and lungs, hence we would have diminished arterial blood pressure.

On the other hand, negative differentiation would be attended by the opposite effect. Atmospheric pressure upon the surface of the body, more than balancing that admitted into the lungs for the purpose of aeration, would produce increased flow of blood toward the thorax; while the increased pressure, required to force it again out through the aorta into the general circulation, would result in raised arterial tension, with a tendency toward pulmonary congestions and hemorrhages; hence, before deciding upon treatment by pneumatic differentiation, a thorough examination of the heart should be made; and no person found suffering from insufficiency, stenosis, or regurgitation, should under any circumstances, be subjected to it.

It may be said in reference to the treatment by the pneumatic cabinet, that the size and cost of the apparatus, place it outside of the reach of the general or even special practitioner; except in institutions, where ample provision is made for the treatment of chest affections. Although to a certain extent this may be true, yet the principles of the pneumatic cabinet may be carried out in all their bearings, in a simpler and less cumbersome manner. Dr. Ketchum in his paper on "The Physics of Pneumatic Differentiation," denies this; but Dr. Platt of Brooklyn, and Dr. Shurly of Detroit, have

distinctly proven that compressed and rarified air, when respired from a Cohen and Richardson apparatus, the body remaining in the normal air, can be made productive of the like results. The real question is the comparative density of the breathed and periphery air. Under ordinary circumstances of respiration, the pressure within the lungs and external to the body is equal. But if compressed air is breathed, the external air is more than balanced. The blood rushes from the thorax toward the surface, the chest enlarges, the blood pressure is diminished, and positive pneumatic differentiation produced.

On the other hand, let the patient breathe rarified air, the periphery pressure being normal, the blood rushes to the thorax, the lungs are compressed, inspiration is labored, blood pressure is increased, and negative differentiation is the result. All too without the assistance of the pneumatic cabinet.

The especial chest affections, in which inhalations, of one kind or another may be useful, are asthma, emphysema, bronchitis, catarrhal and fibroid pneumonia and certain stages of phthisis. In cardiac affections, their use would in many cases be worse than useless. So also in pleurisy; Donaldson however relates two cases where compressed air broke up old pleuritic adhesions.

It may be laid down as a rule, that in all diseases, where the expectoration is profuse and exhaustive, steam or watery inhalations are contra-indicated; while in the opposite conditions, accompanied by hacking cough with dry vesicular and bronchial membrane, the like inhalations properly administered may prove in the highest degree beneficial.

Asthma.—Among the many recent methods of treatment, for this seemingly intractable disease; besides the inhalation of oxygen, is the inhalation of compressed air. This has been practiced largely at Montpellier and Nice, and on the whole with beneficial results. Theoretically, however, the results would be still better, if, after inhaling compressed air for a considerable time, so as to expand the lungs to the utmost, this was followed by rarified air, so as to force out as much of the residuum as was possible. The expansion and contraction would thus be beyond the normal limits, with a possibly beneficial effect upon the ultimate nerve filaments.

Bronchitis.—In bronchial affections, particularly of a sub-acute or chronic character, medicated

inhalations are frequently very beneficial, more particularly when the atomization is carried to such an extent as to completely vaporize the medicament to be applied. Dr. Shurly, of Detroit, has devised an apparatus by which this can be accomplished in a very admirable manner.

With ol. Petrolini, also introduced by Dr. Shurly, as a menstruum, carbolic acid, naphthalin, thymol, ol. picis, benzoin, eucalyptol, etc., can all be administered in such an attenuated state, that a microscope would hardly succeed in discovering the atoms.

In caseous phthisis, or what is sometimes called chronic catarrhal pneumonia, inhalations of the stimulating balsams and oils, often prove beneficial. In this and all other lung cases however, care should always be taken, never to make the inhalations strong or continuous enough to be irritating.

In chronic fibroid pneumonia, or fibroid phthisis, with its dense nodular pigmented tissue, surrounding the bronchioles, when taken before any tendency to hemorrhage has occurred, compressed air inhalations are often productive of good results. In commencing tubercular phthisis also, prior to general miliary deposit, compressed air will frequently swell out the lobules, and help to expel the little plugs of mucus, which so frequently help to solidify the lung.

Barnes' Spirometer, although condemned by some, who probably have given it an insufficient trial, often serves a useful end in cases of this kind. Not only is it a direct index of the vital capacity of the lungs themselves, but it is also a means of utilizing the muscles of the chest, in expanding the lobules, and expelling detained mucus.

Except in the earliest stages of phthisis, medicated air is much preferable to compressed air in the treatment of this disease. Beverly Robinson, of New York, is enthusiastic in his praises of dry medicated air, through one of the many varieties of ori-nasal inhalers. He gives among its advantages, its low cost, freedom from risk, perfect applicability, and its adaptation to all forms of irritative disease of the respiratory passages. By means of it carbolic acid, creasote, thymol, etc., etc., can any of them be made to impregnate, to a more or less extent, all the air breathed while the inhaler is worn. Rumboldt's method of passing dry air through balsamic preparations of heated vaseline, is still strongly favored by some; while Shurly's

dry air, passed through the balsams and rezins with Petrolin ol. as a menstruum, probably stands superior to all.

In emphysema, compressed air and rarified air are deemed by many to be advantageous, particularly the latter; as it enables the largest amount of residual air to be expelled from the air-cells, thus favoring a return to the normal condition of the lung tissue.

Corner of College and Spadina Avenues.

SUB-SURFACE IRRIGATION DRAINAGE.

BY EDMUND BURKE.

THE disposal of liquid or semi-liquid house wastes, in localities destitute of sewers, has been for many years a very serious problem, and more especially since civilized communities have become awakened to the necessity of sanitary reform.

In the "good old days" when the yard well was the nearest approach to a plumbing appliance, the housewife was content to throw the kitchen slops on the ground near the back door and sometimes very near the well, oblivious of the fact that the filth-laden water eventually found its way into the said well, greatly to the danger of the health of the household.

A step backward was the rough stone drain leading sometimes nowhere, each crevice holding decayed filth, the whole becoming an elongated cess-pool.

Then as plumbing appliances began to be introduced, and when no convenient water-course was at hand, the leaching cess-pool was introduced, built of uncemented brick or stone and poisoning the ground with its foul filterings, generating death dealing gases, often bottled up, with their only outlet through trapless or defective fixtures.

The method of disposing of house wastes by the sub-surface irrigation system, was developed in England some 25 years since by Rev. Henry Moule, and was introduced into America by Col. Geo. E. Waring, of Newport, some years later.

The system consists in the intermittent flow and distribution of liquid sewage through open jointed porous tiles (known to us as weeping drains), into the soil at from 9 to 18 inches below the surface of the ground, and at intervals of about 6 feet. These pipes should be laid in rows, like a gridiron.

It is necessary that these pipes should have just sufficient fall, to prevent the liquids running too

rapidly to the ends of the drains, and thus gorging them at these points, and causing periodical eruptions of filthy water to the surface. At the same time, the fall should be sufficient to carry the water into and along every branch, whence it will find its way evenly and rapidly into the ground; a fall of about one-half an inch to 10 feet has been found to best meet these requirements.

For the success of this system it is necessary to provide: 1st, a settling tank; 2nd, a flush tank; and 3rd, that the ground shall have the proper slope and be drained either naturally or artificially.

The settling tank is necessary for the first reception of the sewage, especially where fecal matters and deposits of grease have to be dealt with. This tank should be built of hard brick, built in cement, and plastered with the same material both inside and out. It should be extended to the surface, coped with stone, and have a durable hinged and padlocked iron lid. It has been found that the bulk of the more solid portions of the household wastes becomes reduced to liquid pulp in a few days and passes off without choking the drains.

The mouth of the outlet drain should dip several inches below the surface to prevent the entry of floating grease or solids. The tank should be of capacity sufficient for all possible demands—at the same time it should not be so large as to contain an undue amount of filth—better that it should be smaller and more frequently emptied.

An examination is required only at long intervals for the removal of possible accumulations of grease, the greatest enemy to the continuous working of any drainage system.

The flush tank is necessary to create the intermittent flow before mentioned. This tank should be of size sufficient to store and retain the accumulating wastes till the previous discharge has had time to become thoroughly absorbed by the ground. Its size should also approximate the combined capacity of the discharge pipes, so that the whole system will be filled at one discharge of the tank.

The ground should be carefully levelled off to a fall equal to that required for the drains, so that when laid they shall all be, as nearly as possible, at an equal distance from the surface.

If the soil is loamy or gravelly and a few feet higher than a water course or depression, it will not require under-drainage. If heavy clay, retaining surface waters, it will. Some sandy soils are

too porous, and some clay soils too retentive, and when such is the case the lacking constituents can be supplied at a comparatively small expense. When the above requirements are taken into consideration it will be seen, that considerable judgment will be called for, and that perfect success may not crown the first attempt. Dr. Pinkham, of Montclair, N. J., who, with others of that town has given the system a thorough test, says: "When organic matter is absorbed into the soil near the surface, as provided for by this system of sub-surface irrigation, coming in contact as it does, in a state of minute subdivision, with the air and condensed oxygen contained in the porous soil, it undergoes a rapid oxidation. The change which takes place is in every essential particular equivalent to that of combustion. The organic matter thus treated is just as much destroyed as if it was burnt, and the resulting products are as harmless as the products of combustion of wood or coal. Soil, which has been used in this way for many years has been found to be but little changed, the liquid resultants of disintegration having evaporated or become absorbed by the roots of plants, while the solid resultants which remain but slightly (and not in any essential particular,) differ from the original constituents of the soil."

Dr. Pinkham, again, quoting Schubler, says: "The earths possess the remarkable property of absorbing oxygen gas from the atmospheric air, a phenomenon pointed out many years ago by A. Von Humboldt. This property of the earths is confirmed almost without exception, provided they be employed for this purpose in a moist state. In the experiment which he instituted, exposing one thousand grains of different earths for thirty days, in vessels of 15 inches cubic contents, (15 inches of air containing 3.12 inches of oxygen) he found, that sandy loam absorbed 1.39 inches of oxygen, clay loam absorbed 1.65 inches, and garden mould 2.60 inches."

With regard to the quantity of land required for the system, Colonel Waring recommends an area of 250 square feet to each person. Allowing the household a consumption of 300 gallons per day, will give 3 gallons of sewage to 25 square feet of ground. If we assume a depth of only 4 feet for soakage, this will give us 100 cubic feet of earth to filter and absorb 3 gallons of water per day.

In the experience of those, who have used the system, it has, when properly constructed, been a complete success.

Col. Waring says: "Seven years ago last October, when I built my present house, I applied this method there in the most thorough way, and have been watching it, with great care, with a view to what I might learn from it from that time to this. I do not hesitate to pronounce it absolutely perfect. I am satisfied that it affords relief which is open to every one who has even a little bit of ground adjoining his house. I would say, by the bye, that I have no water-closets in the establishment; we use earth closets only; so that my experiment has not been complicated by that element. At the same time there is no practical difficulty; there is no reason why that may not be taken care of as well as the other. The water settles through the soil, thus finding an outlet, and the soil through which it passes filters out the foul matters. Immediately the water passes away, fresh air enters from the surface, and by the well-known concentrated oxidizing power of porous matters, whether powdered earth or whatever it may be, an entire decomposition is effected of this foreign matter, so much so that after five years, there being, from defective work, an occasion to take up a part of this system of drainage, I took up the whole, and gave it a thorough examination, and in no place could you detect in the earth, which lay adjacent to these tiles, in which they were immediately encompassed, either by appearance or odor, the slightest difference from ordinary fresh-smelling garden mould. This has been going on, as I say, since seven years ago last autumn, for a household of six persons, with rather a copious use of water, and there has been no other means adopted. I would not, of course, on my own single experiment, venture to recommend this, as I have done frequently, to the public as being worthy of adoption. Its use has extended very much. I applied it last year to the sewage of the whole village of Lennox, in Massachusetts; and in England it is being adopted for the sewage of country houses far and wide, and is based on the principle which is thought by many English engineers to promise the only relief that they can have from their sewage. When I am describing this, the question which is almost universally asked is. What becomes of the solid matter and grease in the settling basin? At first I used to have it taken

out and buried about once in three months—Jug a trench in the ground near by, cleaned out the settling basin and buried its contents in the trench. But once, only a week after cleaning it out, I had occasion to empty it again for another purpose and found that it was as foul as it had been after a longer interval. That was about three years ago. Since that time the settling basin has never been opened except for inspection, and its condition remains always the same. The explanation is perfectly simple. The solid matter at the bottom of the tank is decomposable matter, and is constantly passing itself off in solution in the water which flows away; and the matters which are decomposing are very strong producers of ammonia, which acts upon the under side of the floor of grease and converts that into soap, which in its time passes off."

James C. Bayles, author of the well known treatise on "House Drainage and Water Service," says: "Having had three years experience with this system, so far as its essential details are concerned, in draining my own house, I have no hesitation in expressing the opinion, that under favorable conditions it will work satisfactorily and be found an improvement on any other system which can be contained within the restricted limits of a village lot or villa site."

Dr. Whitehorde, physician of the Essex County Penitentiary, says: "I would say that the fact of the utility of the system is patent, and under proper conditions is available for the healthful disposal of the sewage equally of the smallest family or the largest public institution. Before the change was made here the solid fecal matters were composted and made use of on the farm but a large portion of the immense amount of liquid, holding noxious matter in suspension, found its way into a neighboring brook, and contaminated both the air and the running water, being perceptible as far as Caldwell village, three-fourths of a mile distant. At present the solids are equally available for composting, and the saturated liquids, by means of the laterals, are disposed of without defiling the running water below. During summer the ground above is made use of for a kitchen garden, and produces abundantly, so that thus controlled, these elements otherwise poisonous, are made subservient to the good of man."

Mr. Edward S. Philbrick says: "There are so many places where this system is applicable, and

its merits are so great in such places, that a full and detailed description of it may be of interest. The limits of its application are as follows: Whenever a quarter of an acre of grass land is available for a single family of eight or ten persons, or an acre for an aggregate of eighty persons, so situated that the surface of the sod is five feet or more below the level of the house drain, where it leaves the house or houses, this system will dispose of all their sewage in a satisfactory manner, summer and winter, with very little attention, for a term of years."

Dr. Pinkham, before referred to, addressed circulars to some sixty people, who for various lengths of time had employed the sub-surface irrigation system. Their replies were satisfactory almost to a unit.

The questions were: 1st, State size of family; 2nd, approximate first cost of system; 3rd, approximate cost of annual maintenance; 4th, length of time in use; 5th, Is system free from nuisance? 6th, Is all house waste satisfactorily disposed of? 7th, Have stoppages occurred? 8th, Is the soakage area underdrained? 9th, Is it superficially dry? 10th, Give any facts which you think may be of service in determining to what extent and under what circumstances this system can be recommended for general use.

As to question 1st, (size of family) the answers were "from four to one hundred and fifty"—the latter number in Essex County Penitentiary; 2nd, first cost ranged from \$175 to \$1000; 3rd, (cost of annual maintenance,) "from nothing to \$25"; 4th, (length of time in use,) seventeen months to five years; 5th, (Is system free from nuisance?) "Yes," unanimously; 6th, (Is all waste satisfactorily disposed of?) "Yes," but in two cases; 7th, (Have stoppages occurred?) "No," in all but four instances; 8th, (Is soakage area underdrained?) "No," in every case but one; 9th, (Is it sufficiently dry?) "Yes," unanimously; 10th, (Give facts, etc.) all spoke most favorably, giving the system second place only to the system in vogue in regularly sewered towns. Where stoppages occurred, the replies were to the effect that it was to a small extent and in one "once in three years."

The accompanying cuts Fig. 1 and 2, are the plans and details of the system as adopted at the new Dining Hall building erected at Woodstock College, and carried out by the firm of which I am a member, in the years 1886 and 1887.

The site selected for the new building is between the two old buildings and well situated for the new method of sewage disposal.

The Smead system of heating having been adopted, the "dry closet" system was introduced—conveniences being required only for the steward and servants of the institution.

The fixtures emptying into the drainage system are four sinks, five wash tubs and two baths. Water closets could also have been added if found desirable, in which case a larger and deeper receiving tank would have been required, giving a longer time for the paper and excreta to dissolve. The dining hall is planned to accommodate from 150 to 200 boarders.

No accurate data could be obtained as to the required length of drain tile which would be required. A sufficiency of ground was levelled and some 600 feet lineal of 2 in. porous drain tiles laid. This quantity proved somewhat inadequate, and an extension of about 50 ft. in length was made after one winter's trial.

The system was installed under several disadvantages, notwithstanding which it is reported as working satisfactorily, and as having solved a most perplexing problem in regard to the disposal of the College wastes.

The disadvantages above referred to were: 1st, that glazed T pipes had to be used for connections to the weeping drains instead of specially made

Ys—the Y looking down stream, instead of up as in ordinary drain tiles; 2nd, the weeping drains should properly have been laid in specially made gutters of half tiles, instead of these, rough boards 6 in. x 1 in. and from 6 to 12 feet long were used; 3rd, specially made caps to cover the upper side of the joints of the weeping tiles could not be obtained in time, and in substitution, pieces of tarred felt were used, and kept in place with gravel and stone chips till the earth was filled in.

The Y pipes looking down stream receive the flow more evenly, the tendency of the flow being to pass the T pipes nearest the tank with a rush, thus gorging the lower end of the system.

The object of laying the weepers on a foundation of tiles or boards is to secure a more even fall, and and in case of stoppage one or more pipes can be removed, cleansed and replaced, by an unskilled workman without interfering with the grading or working of the system.

The weeping drains are laid from 9 in. to 12 in. below the surface of the ground and the area is used as a lawn. No trouble in regard to frost was experienced, although the thermometer ranges several degrees lower in winter there than in Toronto.

The system as applied to Lorne Park Summer Resort will be illustrated in a future issue.—*Canadian Architect and Builder for January.*

EDITORIAL

ADVANTAGE OF AN EARLY OPERATION IN CANCER.

ASSUMING that a diagnosis of cancer has been made, evidence is accumulating to show that the earlier it is removed the better the prospects of a complete or lengthened immunity from the disease, and that, whether the disease returns soon or late, the best chance is thus afforded to the patient. As an instance of the truth of this doctrine, the following case is very instructive: In October, 1880, a schirrhous was removed from the right mamma of a single lady of thirty-four years of age. There was no history of cancer in her family, and the disease was supposed to have been caused by

striking the mamma against a fence-rail several years before. No enlarged glands could be felt in the axilla. The mamma was completely removed and the patient recovered in a satisfactory manner from the effects of the operation. A microscopic examination of the tumor showed that it was an ordinary schirrhous cancer. The health of the patient continued excellent until October, 1888, when she complained of pain in the right axilla. The pain in addition to being felt in the axilla, radiated downwards over the right lateral aspect of the thorax, and was felt on moving the arm in different directions. No tenderness on pressure could be elicited, on making firm pressure over the

cicatrix of the operation done in 1880, but on making examination of the axilla two or three hard glands were found which were very tender on pressure. An early operation was proposed, but for various reasons it was not done until Jan. 15th, 1889. With the exception of the enlarged glands, which could be felt on making pressure outside the skin, no other enlargements could be discovered, although the axillary space was most carefully searched for anything of an abnormal character. The diseased glands have been examined within the last few days, and pronounced to be cancerous.

Whatever the ultimate fate of this patient may be, the practical fact remains, that by submitting to an early operation in the first instance, she was enabled to enjoy eight years of life free from pain and able to attend to all her duties.

A distinguished surgeon of Toronto, speaking on this subject recently, told us, that the testimony of English surgeons of large experience in operations for cancer, was quite in keeping with the results of the case described above. Many of them stated, when spoken to on this question, that, when operations for the removal of cancer have been done soon after the discovery of the disease and before the lymphatics have become contaminated, the disease does not return for eight or ten years.

In this connection, we are also justified in saying that schirrhous of the mamma is frequently neglected until it becomes *painful*. Patients fearing an operation neglect to ask advice, until the disease is well advanced, and sometimes, on the other hand, physicians, when asked for an opinion, hesitate and recommend an expectant method of treatment, for which little of a favorable nature can be said.

Believing in the soundness of the views expressed above, we think that when a physician diagnoses cancer of the breast, while it is yet not far advanced, and no cancer can be found in other parts of the body, he should express himself in such terms, that there can be no doubt in the patient's mind as to the necessity of an early operation.

Patients will thus obtain the most favorable results, that can be expected in such a disease, and operative surgeons will be enabled to point to more enduring triumphs in the mitigation, if not the cure, of the most rebellious of human ills.

TYPHO-MALARIAL FEVER.

WE think it would be of interest to our readers, if practitioners, more particularly those living where malaria prevails, would give us the results of their experience in the diagnosis and treatment of typho-malarial fever. That typho-malarial fever is a specific or distinct type of disease is denied by many competent observers, and we can well understand, that city physicians, accustomed to treat cases of pure typhoid fever should be incredulous as to the existence of a fever, in which typhoid and malarial phenomena appear in varying proportions. Practitioners in those parts of Ontario where malaria is known to exist, may throw valuable light on this question. It would be interesting to learn, from their clinical experience, the proportion of cases of this fever, in which symptoms indicative of typhoid fever, viz., epistaxis, rose-rash, tympany, iliac tenderness, diarrhoea, and low muttering delirium, have been associated with the phenomena of malarial fever.

If these distinctive symptoms of typhoid fever have been absent, it would be equally interesting to learn if cases have fallen to the lot of observers which have been characterized by persistent fever, the "typhoid state," bronchitis, the absence of nausea and vomiting, and the presence toward the end of the disease of severe attacks of intermittent fever.

The efficacy of treatment might also be discussed with advantage. Assuming that the diagnosis of typho-malarial fever has been correctly made, has the disease been controlled by quinine and other antipyretics, such as antipyrin, antifebrin, resorcin, and salol, or have those remedies been proved to be of little or no value?

Is there any evidence to prove that it becomes epidemic, or can it be traced to insanitary conditions? Has the blood been examined for melanæmia, or has an autopsy revealed pigmentation of the liver and spleen? What is its rate of mortality, and what seem to be the immediate causes of death in cases in which the fever has terminated fatally?

To some practitioners the solution of these queries will be easy, because they are familiar with the literature of the subject, or, because they have had cases of the kind, which have puzzled their diagnostic skill, and which, after a careful weighing

of the pros and cons, have been finally consigned to their proper categories.

From a perusal of our exchanges, we notice that practitioners in Kentucky, Virginia, and other southern States, have been puzzled by the atypical character of the fevers which have fallen to their lot during the present winter. In a paper read recently before the Medical Society of Virginia, Dr. Dabney contends that though the most prominent symptoms were lacking, yet the disease in question was really typhoid fever, from the fact that the cases presented some of the distinctive symptoms of that disease, as hæmorrhage, intestinal lesions, as found on autopsy, and that it prevails at times as an epidemic.

Other observers have noticed little that is characteristic of typhoid fever, except the continued nature of the pyrexia. They have recorded the

absence of low muttering delirium, subsultus tendinum, intestinal hæmorrhage, or diarrhœa. They have noticed the existence of bronchitis, but in some instances have ascribed it to exposure to severe weather, previous to the development of the disease.

As during a mild autumn, like the one just passed, and a winter which has so far been "open," the fevers occurring in certain parts of this Province might be expected to be of the same type as those which prevail in the southern and south-western States, we have thought it would be opportune to discuss the subject, and shall be pleased if some or all the queries in this article elicit from our patrons or their friends any explanation of the best methods of diagnosis and treatment in this rather anomalous disease.

INDEX OF PROGRESS

MEDICINE.

Is Inflammation of Peyer's Patches Proof Positive of Typhoid?

Dr. F. W. Chapin has reported in the *Medical Standard* a case in which scarlatina produced these changes in the Peyerian patches, and at a late session of the London Pathological Society Dr. Coleman offered a specimen of diphtheric enlargement of Peyer's patches and the solitary glands.

Dr. J. Harley called attention to a similar condition in scarlatina. Dr. Wilks said similar changes had been found as a consequence of cholera, and Dr. Vandyke Carter had observed them as a consequence of malaria, and had seen ulceration follow.

Epidemic Diphtheria.

Dr. John Irving in *British Medical Journal* says: Nearly four years ago an epidemic of diphtheria made its appearance in a town in Cape Colony, where I was resident. Very few families escaped the disease, and those who did were, I believe, the possessors of filters, and accustomed to pay some attention to hygiene. There had been no case of diphtheria in the place for at least three years, and certainly no similar epidemic during an antecedent period of ten years. The only cause we could assign for the sudden outbreak was the pollution of

the main water stream, which flowed unprotected through the streets in an open furrow. For two or three weeks prior to the first appearance of the disease exceptionally heavy rains had fallen, washing out every exposed privy and kraal, and carrying filth accumulations (in some instances of years) straight into the stream. All the inhabitants were dependent upon this one source for their supply of water. One farmer came to town with his children, and, when about to return, he took a sufficiency of water from the contaminated stream for the homeward journey, a drive of fifteen miles. The three children drank of the water, and within ten days all of them developed diphtheria, of which one died.

Two years ago, when in practice in the Midlands, I was summoned in great haste to see a child aged two years. The patient was moribund, and presented most marked laryngeal and other diphtheritic symptoms. Death took place soon after my visit. The only other child of this family, four years of age, was "ailing," the mother said. Her tonsils presented characteristic patches and the *malaise* of diphtheria. Inquiry elicited that the stable adjoining the house had been but recently "cleaned out," at which process both these children had been present, and had been allowed to play in the stable for an hour or two afterward.

The Bacillus of Diphtheria.

D'Espine, of Geneva, has made a series of researches confirmatory of Löffler's claim that a certain bacillus discovered by him in diphtheritic false membranes is the causal agent of diphtheria. The results are published in the *Lyon Médical*. D'Espine has never failed to find Löffler's bacillus in cases of true diphtheria or diphtheritic croup; and he has in many instances succeeded in reproducing the disease in hares and guinea-pigs by inoculating the products of a series of pure cultures; bacilli from a twenty-fifth culture were proved to have the same pathogenic properties, and speedily induced the disease.

Self-Asphyxiation in the Treatment of Insomnia.

A correspondent of *The Lancet* has found the following to be an effectual remedy in his own case: After taking a deep inspiration he holds his breath until discomfort is felt, then repeats the process a second and third time. As a rule, this is enough to procure sleep. A slight degree of asphyxia is thus relied on as a soporific agent.

Mortality from Cancer.

Sir Spencer Wells said, in the Morton Lecture: "Notwithstanding the great advance in sanitary science and the prolongation of the average length of human life—in spite of the shortening of the duration and the lowering of the mortality of some diseases, the prevention (almost the stamping out) of others—cancerous diseases, so far from being less prevalent or less fatal, are increasing among us. The increase in the number of deaths from cancer is now, and has been for many years past, greater than the proportional increase of population." And he proved conclusively that this increase is common not only to England and Wales, and in Scotland to nearly the same extent, but also in Ireland, though in smaller proportion. The correspondence between the Collective Investigation Committee of the British Medical Association and the Register-General will not be forgotten, and its importance was fully acknowledged by Sir Spencer Wells. The facts that the number of deaths from cancer in England had increased from 7,245 in 1861 to 17,113 in 1887, and that the proportion of deaths from cancer to one million persons living had increased from 360 in 1861 to 606 in 1887 in

England; in Ireland from 350 in 1877 to 430 in 1887; and in Scotland from 404 in 1861-65 to 540 in 1881-85, are surely of extreme importance. They will probably surprise most of our readers. They have never before been so clearly put before us as in the second Morton Lecture.

Proper Names in Medicine.

The following list is translated *La France Médicale* by Philadelphia *Medical Times*:

- Addison's keloid—Morphœa
- " disease—Bronzed skin.
- Alibert's " —Mycosis fungoid.
- Aran-Duchenne's disease—Progressive muscular atrophy.
- Astley Cooper's hernia—Crural hernia with multilobar sac.
- Argyll-Robertson's sign—Absence of pupil reflex.
- Basedow's disease—Exophthalmic goitre.
- Bain's " —Buccal psoriasis.
- Beclard's hernia—Hernia opposite the saphenous orifice.
- Bell's palsy—Paralysis of the 7th pair.
- " spasm—Convulsive facial tic.
- Bergeron's disease—Rhythmic localized chorea.
- Boudin's law—Antagonism of paludism and tuberculosis.
- Boyer's cyst—Sub-hyoid cyst.
- Bright's disease—Albuminous nephritis.
- Brown-Sequard's syndrome—Hemiparaplegia, with hemianæsthesia of the other side.
- Cazenave's lupus—Lupus erythematosus.
- Charcot's disease—Ataxic arthropathy.
- " " —Lateral ankyrotropic sclerosis.
- Cheyne-Stokes' respiration—Uremic respiration.
- Cloquet's hernia—Pectineal hernia.
- Colles' fracture—Fracture of the lower end of the radius.
- " law—Non-infection of the mother by her syphilitic child.
- Corrigan's disease—Aortic insufficiency.
- Corvisart's facies—Asystolic facies.
- Cruveilhier's disease—Simple gastric ulcer.
- Donder's glaucoma—Simple atrophic glaucoma.
- Dressler's disease—Paroxysmal hemoglobinuria.
- Dubini's disease—Electric chorea.
- Duchenne's disease—Locomotor ataxy.
- " palsy—Pseudohypertrophic palsy.
- Duhring's disease—Dermatitis herpetiformis.
- Dupuytren's disease—Retraction of the palmar aponeurosis.
- Dupuytren's hydrocele—Encysted hydrocele
- E. Wilson's disease—Generalized exfoliative dermatitis.
- Eichstedt's " —Pityriasis versicolor.
- Erb's palsy—Paralysis of the roots of the brachial plexus.
- Erb-Charcot's disease—Spasmodic tabes dorsalis.
- Fouchard's " —Alveolo-dental periostitis.
- Friedrich's " —Hereditary locomotor ataxy.
- Gerlier's " —Vertigo with paralysis.
- Gibert's pityriasis—Rosy pityriasis.
- Gibbon's hydrocele—Hydrocele with voluminous hernia.

Gilles de la Fourette's disease—Motor inco-ordination, with echolalia and coprolalia.
 Goyrand's hernia—Inguino-interstitial hernia.
 Graves' disease—Exophthalmic goitre.
 Graefe's sign—Dissociation of the movements of the globe of the eye and of the upper eyelid.
 Guyon's sign—Renal ballotement.
 Harley's disease—Paroxysmal hemoglobinuria.
 Heberden's rheumatism—Rheumatism of the smaller joints, with nodosities.
 Hebra's disease—Polymorphous erythema.
 " pityriasis—Chronic pityriasis rubra.
 " prurigo—True idiopathic prurigo.
 Henoch's purpura—Purpura with intestinal symptoms.
 Heselbach's hernia—Crural hernia with multi-lobar sac.
 Hippocratic facies—Agonized facies.
 Hodgkin's disease—Adenitis.
 Hodgson's " —Aortic atheroma.
 Huguier's " —Uterine fibro-myoma.
 Hutchinson's teeth—Syphilitic teeth.
 " triad—Syphilitic teeth, interstitial keratitis, and otitis.
 Jacob's ulcer—Chancroid.
 Jacksonian epilepsy—Partial epilepsy.
 Kaposi's disease—Xeroderma pigmentosum.
 Kopp's asthma—Thymic asthma; spasm of the glottis.
 Kronlein's hernia—Inguinal, peritonial.
 Lænnec's cirrhosis—Atrophic cirrhosis.
 Landry's disease—Acute ascending paralysis.
 Laugier's hernia—Hernia across Gimbernat's ligament.
 Leber's disease—Hereditary optic atrophy.
 Levret's law—Marginal insertion of the cord with placenta prævia.
 Littre's hernia—Diverticular hernia.
 Ludwig's angina—Subhyoid infectious phlegmon.
 Malassez's disease—Cystic testicle.
 Menière's " —Labyrinthic vertigo.
 Millar's asthma—Stridulous laryngitis.
 Morand's foot—Foot with eight toes.
 Morvan's disease—Analgesic paresis of the extremities.
 Parrot's disease—Syphilitic pseudo-paralysis.
 " sign—Dilatation of the pupil on pinching the skin.
 Paget's disease—Pre-cancerous eczema of the breast.
 " " —Hypertrophic, deforming osteitis.
 Parkinson's disease—Paralysis agitans.
 Parry's " —Exophthalmic goitre.
 Pavy's " —Intermittent albuminuria.
 Petit's hernia—Lumbar hernia.
 Pott's aneurysm—Anastomotic aneurysm.
 " fracture—Fracture of the fibula by division.
 " disease—Vertebral osteitis.
 Raynaud's disease—Symmetrical gangrene of the extremities.
 Reclus' disease—Cystic disease of the breast.
 Richter's hernia—Parietal enterocele.
 Rivolta's disease—Actinomycosis.
 Romberg's sign—Unsteadiness of ataxics in darkness.
 " trophoneurosis—Facial hemiatrophy.
 Rosenbach's sign—Abolition of abdominal reflex.
 Salaam tic de—Convulsive salutation.

Sœmisch's ulcer—Infectious corneal ulcer.
 Storck's bleorrhœa—Bleorrhœa of the upper air passages.
 Stokes' law—Paralysis of muscles subjacent to inflamed serous or mucous membranes.
 Sydenham's chorea—Common chorea.
 Thomsen's disease—Muscular spasm at the beginning of voluntary movements.
 Tornwald's disease—Inflammation of Luschka's pharyngeal gland.
 Velpeau's hernia—Crural hernia in front of the vessels.
 Volkmann's deformity—Congenital tibio-tarsal luxation.
 Wardrop's disease—Malignant onyx.
 Weil's disease—Abortive typhus with jaundice.
 Well's facies—Ovarian facies.
 Werlhoff's disease—Purpura hemorrhagica.
 Westphal's sign—Abolition of patellar reflex.
 Willan's lupus—Lupus tubercular in form
 Winckel's disease—Pernicious cyanosis of new-born infants.

SURGERY.

Subdural Abscess of the Brain.

The following are the conclusions of Sir William Stokes regarding abscesses of the brain :

1. That after the primary symptoms of cerebral traumatism have subsided, there is frequently a latent period of varying length, during which there are no distinct brain symptoms connected with abscess formation whatever.

2. That their appearance is, as a rule, sudden, and if uninterfered with they run a rapidly fatal course.

3. That the concurrence of pus production resulting from cerebral traumatisms is not incompatible with a perfectly apyrexial condition.

4. That the latter fact will probably aid in differentiating traumatic cerebral abscess from meningeal or encephalic inflammation.

5. That, both as regards color and consistence, there is great variety in the contents of cerebral abscess cavities, and that, as shown in Wilne's case, published by Rose, of Berlin, they may become transparent.

6. That antisepticism has largely diminished the risks of the operation of trephining.

7. That, having regard to the great mortality of cases of cerebral abscess when uninterfered with, viz., from ninety to one hundred per cent, the operation is indicated even when the patient is *in extremis*.

8. That, in the case when the trephine opening does not correspond to the situation of the abscess,

exploratory puncture and aspiration may be employed.

9. That by the adoption of this measure the necessity for multiple trephine openings can be largely obviated.

10. That the employment of a blunt-pointed aspirating needle, as suggested by Rentz, is probably the safest mode of exploration and evacuation.

11. That drainage is desirable in the after-treatment of such cases.

12. That both during and subsequent to operative interference in these cases a rigid antisepticism is imperatively required.

Sarcoma of the Vagina in Children.

Dr. Schuchardt read before the second congress of the German Gynecological Society at Halle last May a paper on two classes of "Malignant Disease of the Vagina in Children." Both had undergone operation in Professor Volkman's wards. Seven cases have already been recorded in medical literature by Ahlfeld, Sager, Babès, Demmel, Soltmann, Hauser, and Heintal. In only one case was the tumor noticed at birth; the ages of the patients, when observed by the above authorities, ranged from two to five. The growth usually appeared as an irregular prominence, like a bunch of grapes, and always proved very malignant in its clinical history. The first case occurred in a child, aged seven, who died from recurrence of the sarcoma two months after operation. The second patient was about five years of age. She had fallen ill early in 1885; her nurse then noticed that a swelling, the size of a bean, protruded at the vulvar aperture when she coughed. The growth was excised, together with a piece of the vaginal wall, "the size of a ten-pfennig piece," in September, 1885. Six months and two weeks later local recurrence was detected; a tumor, about the size of a walnut, was removed, and with it was taken away the lower half of the posterior vaginal wall. The cut margin of the upper half was drawn down and sewn to the perinæum. The patient made a very good recovery, and there was no sign of recurrence in May, 1888. The new growth was in both cases papillomatous; the internal structure bore the microscopic characters of a round-celled sarcoma. Dr. Schuchardt believed that the tumor took its rise from certain papillary structures which naturally existed in the region of the vulva.

Ingenuity in Minor Surgery.

M. Gill, M.D., writing to the Editor of *Medical Reporter* says—An item in your November issue, reminds the writer of a long neglected duty. You transcribe the case of 'Thomas Dunigan, a stalwart young blacksmith,' who was allowed to bleed to death from hemorrhage produced by extraction of a tooth.

The following incident occurred many years since in Williamsport, Penn.: Dr. H., a principal physician of the town, had a tooth extracted, resulting in a continuous, uncontrollable hemorrhage. Brethren of the profession were called in but without avail, and their united efforts became a meditation upon death. The patient became exsanguined and his life was despaired of. A young M.D., Dr. James Tayler, had recently come to the village and opened his office. As a dernier ressort he was invited to see Dr. H. At once he applied pulv. galkæ with a cotton tent held down by a properly adapted vial cork, maintained in position by the opposing teeth.

Immediately the hemorrhage was stayed, and a valuable life preserved. Might not the life of that stalwart young man have been saved by the same simple measure?

THERAPEUTICS.

The Relative Value of the Bromides.

Every ten grains of sodium bromide contain 7.76 grains of bromine, and every 10 grains of potassium bromide contain 6.72 grains of bromine; so that, in order to prescribe the same weight of bromine, we must give, instead of 10 grains of bromide of potassium, only 8.6 grains of bromide of sodium. So also with the iodide of potassium, a ten-grain dose is represented by a nine-grain dose of iodide of sodium.

A Pleasant Purgative for Children.

Dr. R. R. Mitchell, of Cleveland, says: It is conceded, I believe, that castor oil would be the most popular purgative for children known, if it were not for its objectionable taste; that aromatic syrup of rhubarb is a most excellent purgative, and would be used, almost to the exclusion of other preparations, if the irritant after-effect that follows its administration did not militate against its employment; and that cascara cordial, from its desirable tonic properties, would be the *sine qua non*

only its proper role is as a tonic curative laxative, and is too uncertain as a purgative.

A friend kindly informed me recently, that he employs the prescription given below with success. The combination pleased me. I have tried it, and it fulfills all indications (including palatableness) more satisfactorily than any purgative I have prescribed. It will serve equally well for grown up children.

R—Castor oil,
Aromatic syr. rhubarb,
Cascara cordial, aa f ʒ j.—M.

SIG.—One teaspoonful, or as may be needed.

Cascara in Rheumatism.

The patient, says J. S. Morris, M.D., of Prairie City, Iowa, is an old lady of 64 years of age. She had suffered from rheumatism for years, and had been under treatment by quite a number of physicians, without having a cure effected. I was called in to treat the case, and concluded it was a good one in which to test the efficacy of cascara sagrada.

I prescribed ʒ ozs. of fl. ext. cascara sagrada, in 15-drop doses, to be given every four hours. After giving the first few doses she began to feel relieved, and in two weeks' time said she was entirely well, but she was so well pleased with the action of the medicine that she continued taking it until the two ounces were used.

Over three months have rolled by and she has had no return of the trouble, and says she has not felt so well for years.

[We are not aware that any explanation of the *modus operandi* of this new therapeutic action of cascara sagrada has as yet been attempted, such articles on the subject as have come under our notice consisting of the pure statement of facts. We know, however, that this drug has a very decided influence over the eliminative functions, and it is but reasonable to look for the secret of its efficacy in rheumatism in this direction. A writer in the *British Medical Journal* has found that a combination of the drug with the salicylates is especially efficacious. The salicylates act by the the antidotal property of the salicyluric acid which they form in the blood. The desirability of an eliminant in conjunction with this action is apparent, and cascara sagrada is probably beneficial through this property.—ED.]

Strychnia an Antidote for Morphine Poisoning.

J. R. Fletcher, M.D., of Wartrace, Tenn., reports the following: Mr. C. took at four o'clock p.m., while drinking, six grains of morphine, and in a short time was sound asleep and could not be aroused. In half an hour afterwards an effort was made to clear the stomach by vomiting, without effect, and other means to arouse the young man proved as futile as the emetics; the man slept in spite of everything. I saw him at 8 o'clock p.m., four hours after he took the morphine, and found him with all the symptoms of morphine poisoning, pulse slow, and breathing very slow and stertorous. In fact, he was in a profound coma, and it was concluded by all that he must die. His extremities were cold and blue, no muscular resistance could be excited by any means. I gave him one-thirtieth of a grain of strychnia hypodermically, and in a short time his pulse and breathing improved greatly, and in ten or fifteen minutes he opened his eyes when violently shaken and sharply spoken to. At this time efforts were made to wake him, after which time, say about one hour, I again injected him with one-thirtieth of a grain of strychnia, and in a short time was surprised to see the magical effect of the remedy. In a few minutes more the man was conscious. During the interval between the injections of strychnia he took five grains of carbonate of ammonia every half hour. He made a good recovery.

I consider this a grand victory, as I had two poisons to encounter, morphia and alcohol. I do not know that this is a new idea, but it was new with me, as I had never read of a cure of morphia poisoning treated with strychnia, and offer this to the profession. If it is not new, it may reach some one who may have never heard of it before.

Alcohol v. Snake Poison.

W. R. D. Blackwood, of Philadelphia, writes to the *Scientific American*:—The extract quoted in your issue of November 10, from the paper of Dr. Hudson on this subject, is liable to mislead those who may be called on to treat snake bite; and as the *Scientific American* falls into the hands of thousands of people, any statement in it is apt to be of more interest to them than if it were noted in a medical journal, whose readers are mostly professional, and who are not so easily misled as the general public by erroneous reasoning. An experi-

ence with twenty-three cases of snake bite in rattle-snake (*Crotalus horridus*) and eight of water moccasin (*Trigonoccephalus piscivorus*), with the study of many cases reported to me by capable physicians, leads me to believe that alcohol is the antidote to snake venom, and the only reliable one. Laboratory experiments on the lower animals are of no real value in therapeutics as applicable to man, and those referred to by Dr. Hudson were fallacious in themselves. The admixture of a few drops of alcohol or any other supposed antidote with snake virus is misleading, for the quantity of the antidote is infinitesimal as compared with the concentrated and deadly animal poison. To illustrate: A private in the Second U. S. infantry was bitten by a moccasin, and within less than four hours he swallowed under my direction three quarts, and a little over, of good apple jack, without any symptoms of intoxication until after the last three ounces, and then only slightly. His pulse and respiration failed promptly unless thus stimulated for nearly the whole time. Now, knowing that the snake venom is a powerful cardiac and nervous depressant, is it not reasonable to say, that the enormous stimulation was borne only because of the persistent reduction of vitality by the virus injected by the reptile? Where would a few drops of alcohol be in such a case? I have seen and examined the body of a child killed in fifteen minutes by a rattlesnake, where the temporal vein received the poison. She had no treatment. Ammonia is too fugacious, bromine and permanganate are useful locally or internally, so also is the reputed cure-all, wild violet (*V. sagittata*). The majority of presumed deadly bites are given by non-venomous reptiles, and the escape of the snake or the loss of presence of mind on the part of the person bitten leads to mistakes; but in bona-fide venomous bites, alcohol in some form is an absolute antidote, when promptly and freely used. The failure of the pulse is the guide, and as the poison is rapidly absorbed, all ligatures, excisions, and cauterizations are simply useless and aggravating. Intoxication is not desirable, but stimulation should be evident to avert sudden heart failure, and I may say in this connection, that in two instances the subcutaneous injection of atropia was markedly serviceable in maintaining respiration.

My cases occurred during my army life, between 1861 and 1872, and in the States of Alabama,

Georgia, Tennessee and Virginia, two during the war and the rest after that eventful period.

MIDWIFERY.

Early Signs of Pregnancy.

There are probably very few physicians who have not at times felt the need of some trustworthy means of deciding upon the existence or absence of pregnancy at a time when if present it could not be far advanced, and when it is too soon to expect to hear the sounds of the foetal heart or to obtain the confirmation of *ballotement*. In this country Hegar's sign of pregnancy, which has been well described by Dr. A. K. Bond, in an article in the *Maryland Medical Journal*, in the early part of this year, has not received the attention it deserves, and American physicians have failed to appreciate, or at least to practice, Hegar's method.

This sign is to be determined by combined rectal and abdominal examination. It consists in the detection of an unusual softness, thinning, and yielding condition of the lower uterine segment—that is, of the part immediately above the insertion of the sacro-uterine ligaments. This condition of the part is perceptible whether the rest of the body of the uterus feels firm and hard, or soft and elastic. Even in the latter case it is always possible to compress the lower uterine segment, to draw it out to a certain degree with the fingers, and so to distinguish it from the part above it; while below, the cylindrical cervix of firmer consistence is felt distinctly coming off from it. The yielding and flaccid condition of the part may be so great that one may doubt whether there is any connection at all between the neck and the larger swelling in the abdomen or pelvis. This is especially true when pregnancy occurs in the uterus with hypertrophic elongation of the cervix; and even laparotomy has been done under the mistaken idea that the pregnant corpus was a tumor independent of the uterus. The condition referred to depends upon the fact that the lower uterine segment, as the thinnest part of the corpus, on account of pregnancy, becomes succulent, of looser texture, thinned, and extremely elastic. According to Reine, "failure to find this, however, in no way excludes pregnancy, since it is easy to say that with marked chronic infarctio uteri (hyperplasia) pregnancy may exist without rendering this condition of the lower uterine segment very evident."

There is another useful sign of pregnancy which depends upon the well-known fact that, in the first eight weeks of pregnancy, the principal enlargement of the uterus is in the antero-posterior diameter of its corpus, while the cervix undergoes scarcely any change, except a superficial softening at the external os. The direction of the enlargement of the body of the uterus causes it to project markedly from the cervix, especially in front. The shape of the whole uterus has been likened by Grandin to an old-fashioned fat-bellied jug. This striking relation between the corpus and cervix is readily distinguished by one moderately skillful in making the bimanual examination. A quite characteristic bogginess, softening, and compressibility of the lower uterine segment is also detected. This sensation is brought about by the effects of physiological congestion of pregnancy upon the uterine tissues, and partly, also, by the fluid contents of the uterus.

The condition just described is an almost positive sign of pregnancy, especially if in addition there is marked fullness and pulsation of the vessels on both sides of the pelvis, without evidence of pelvic inflammation, and a more or less distinct purple hue of the vagina. It is reliable as early as the sixth or eighth week.

It would seem, theoretically, that this method of examination has one marked advantage over combined rectal and abdominal examination, for not only can the physical condition of the lower uterine segment and increased mobility of the corpus be made out nearly as well, but the striking jutting out of the corpus over the cervix is much greater in front than behind, and therefore more easily detected through the vagina than through the rectum. Naturally the employment of both methods of examination would give more trustworthy information than either alone. This condition of the lower uterine segment was apparently known to Dr. Rosch as long ago as 1873, but he failed to appreciate fully the subject and only laid stress on the feeling of fluctuation to be obtained by bimanual examination.

DISEASES OF CHILDREN.

Surgical Treatment of Rickets.

In a paper read on this subject by Alexander Ogsten, M.D., C.M., in the section on Diseases of Children of the British Medical Association, and

the discussion which followed it, the remarks made have appeared so remarkable as illustrating how small a part the mere surgical plays in the treatment of the disease, compared with the hygienic part in the hands of the illustrious surgeons who spoke, that we cannot refrain from quoting some of them:

Dr. Carmichael substantially agreed with the opinions already expressed as to anti-hygienic and unfavorable dietetic conditions being the main factors in the causation of rickets. It was no doubt rare to see rachitis in breast-babies; but the poor women who frequented the out-patient hospital room, many of whom were badly fed and whose milk was defective in quality, sometimes had rachitic children. In the artificial feeding of children, as commonly carried out, there could be no doubt that one of the main faults was the deficiency of the fatty element. When cow's milk was simply diluted with water and sugar added, the fat was deficient; in condensed milk, which was largely used, the same nutritive defect obtained. In his opinion, the faults in the system of artificially rearing children were due to ignorance on the part of the public of the real wants of the child as regards a proper substitute for mother's milk. He felt grieved to say that the profession was partly to blame for not sufficiently inculcating the necessity of due attention to the subject. He was glad that the President had alluded to the great need of systematic instruction in medical schools, of the diseases in children and felt sure that the improved education of students in this direction would have good effects. As to treatment, there should be careful attention to diet and hygiene, and avoidance of dyspepsia and indigestion by the use of suitable stomachic remedies. Cod-liver oil he had found useful, but it was generally given in large doses. Phosphorus he thought undoubtedly had a good effect. In those cases where it was not desirable to give it with cod-liver oil he had found a combination with maltine excellent. He would only refer to a method of administration of cod-liver oil not alluded to, that of inunction. He had used it largely with the best results.

Dr. H. Ashby, while agreeing with all that had been said by the President as regards the production of rickets through improper feeding, thought that it should not be forgotten that the infants of weakly mothers, who were brought up on cow's

milk, often become rickety in spite of the greatest care being taken to give them the milk pure and in suitable quantities. It was a common experience to find the younger children in a family become rickety while the older ones were healthy, even though all had been brought up alike, the rickets being due, apparently to the mother's health having suffered through excessive child-bearing, and, in consequence, the younger children were born weakly, and prone to dyspeptic derangements, and unable to digest the curd of cow's milk as strong and healthy infants usually do. It was one of the commonest experiences of practice to find, that weakly children vomited fresh cow's milk, and were in consequence fed on condensed milk or some of the patent foods, the rickets which followed in such cases being due to the weak digestive powers of the child quite as much as to the quality of the food which it had taken. Premature infants and those weakly from other causes were extremely likely, if they lived, to become rickety, if, unfortunately, they had to be brought up on the bottle. Cow's milk was, after all, a poor substitute for the milk of the mother. The enlargement of the spleen to which Dr. Cheadle had referred as sometimes accompanying rickets was, in his experience, due rather to the cachexia often present than to syphilis.

Mr. Edmund Owen, on being called upon by the President, remarked that much harm was done by the almost careless manner in which the medical man was apt to recommend the administration of "condensed milk," for the child who was not flourishing at the breast, or upon cow's milk. In his experience the worst cases of rickets were those of children who were being brought up on artificial food. Fresh cow's milk and water was the second best food for rickety children: the worst was that which was most widely advertised. As regarded the administration of cod-liver oil, it was generally resorted to in excess. Half a teaspoonful two or three times a day was far too large a dose for a child; it gave rise to sickness and diarrhoea; minute doses were of the greatest therapeutic value. But in hot weather, even small doses could not always be taken. Then the oil should be administered as an inunction. This had the double advantage, that it involved the regular washing of the child.

Dr. Finlayson said he had not intended to take

part in this discussion; he did not know of anything different from what was well enough recognized. It occurred to him, however, that some remarks of a local character might have interest. It used to be recognized that rickets were singularly rare, not only in Glasgow but in Scotland generally, so that, say thirty years ago, this disease was far from common in Glasgow, but he was sorry to say the same could not be said now. How then could the change be accounted for? He believed it was due to the enormous growth of the population, and especially of the female factory population. This had acted injuriously in several ways. There had been a great difficulty in obtaining milk for children, not only because the cost of it had been absolutely increased, but especially because the much cheaper butter-milk, which was formerly carted into town in enormous quantity from adjoining farms, had now become scarce, because of the greatly increased population using up the new milk from the farms, without the trouble of churning being required. Hence, the use of oatmeal, which required milk, had fallen off very much, and the children had been deprived to a great extent both of oatmeal and milk. Another explanation of the prevalence of rickets in Glasgow was to be sought in the growth of the city, making it more and more difficult for the mothers of the poor to send them out into the open air, so that they were cooped up in the flats of large tenements. These causes, he thought, had a very potent influence in leading to an increase of rickets in Glasgow, much more than the change to the soft Loch Katrine water introduced about that time.

Mr. E. L. Freer was pleased to find great prominence given to the hygienic and diatetic causes of rickets from a large experience of rachitic condition. He was inclined to pay less attention to the family histories, especially so far as syphilis was concerned, unless there were other signs present, than to the conditions under which the child had been living. He had met with numbers of cases where the breast milk had been given solely, and where the mother had been also in good health, but by far the greatest factor, in his opinion, was improper feeding. In those children where the digestive powers were so imperfect he had had the best results from treating the milk with Benger's *iq. pancreaticus* first, and afterwards giving Benger's food; by this means the milk had been con-

tinued throughout, the sickness had ceased, and in many cases where other hand-fed members of the family had suffered from rickets, the children thus treated had been entirely free. He did not think it well to continue the treatment at any length of time, gradually leaving it off when the digestive functions were re-established. He was accustomed to order patients who were unable to take even small quantities of cod-liver oil, mutton suet boiled with the milk, and the cod-liver oil used as an injunction.

R. W. Parker said: "Dr. Finlayson had referred to the occurrence of rickets in Glasgow synchronous with the employment of women in the factories. This supported his (Mr. Parker's) contention fully, for no one would gainsay the statement that factory life was very inimical to general health, and that factory women became too weakly to bring forth healthy, strong children. As regarded the connection of rickets and scurvy, he (Mr. Parker) could not persuade himself that this was classical scurvy as seen among sailors, or, indeed, hardly allied to it. If one hundred men were fed on a scurvy diet, all would get scurvy; on the other hand, this so-called 'scurvy-rickets' was a very exceptional disease, notwithstanding the fact that thousands of children were fed on the diet said to produce it. As regarded treatment, he thought that plenty of fresh air, bathing the body in sea-salt water, with subsequent rubbing and massage, the use of fresh food as opposed to the prepared foods, would effect a cure, and that drug remedies might be given up. If it could be had, he would recommend a basin of good Scotch oatmeal porridge every morning for breakfast. He concluded by congratulating Dr. Cheadle, the President of the Section, on the very interesting debate he had initiated.

Dr. Cheadle, in reply, expressed his satisfaction at having the support of Professor Ranke, with regard to the views he had ventured to put forward as to the etiology of rickets; and he thanked him for the valuable pathological evidence he had furnished as to the visceral changes met with in this disease. He could accept Professor Jacobi's views as to the influence of inheritance in the production of rickets, so far as they implied merely the transmission of an enfeebled constitution, favorable to the development of the rachitic state, which was immediately due to faults of diet and hygiene. He could endorse Professor Jacobi's experience as to the

evil effect of cow's milk given merely diluted with water. It required preparation by boiling, and mixing with barley water, or some preparation which would ensure the minute subdivision of curd masses. Given without such precaution, the massive curd-clots produced too often vomiting and diarrhoea, which were so constantly the first step in the development of rickets. His experience, however, did not lead him to place so high a value as Professor Jacobi upon the therapeutic value of phosphorus. But his use of it had been limited, and he was prepared to give the drug further trial. Dr. Carmichael had drawn attention to a point which had been raised in his introduction of the subject, namely, the prevalence of rickets amongst the children of the better classes, and the fact that in such cases the children, being fat and apparently well nourished, the co-existent rickets was often overlooked. The remark by Dr. Ashby that inheritance often told by the transmission of dyspepsia, was borne out in some degree by the fact that in some families an inability to digest cow's milk appeared to be common to all the children. He agreed that the condition of the liver and spleen was not constant, and must for the present be regarded as cachetic, and not specific in character. Mr. Owen's remarks on the efficacy of patent foods in exciting rickets were true; the explanation lay in the fact which he had demonstrated, namely, that such foods were largely deficient in animal fat, and in proteid. The facts supplied by Dr. Finlayson as to the increase of rickets in Glasgow were most interesting and instructive. Mr. Freer's statement as to the value of peptonized preparations in feeding children must be received with some qualification. Digested foods were of great value in gastro-intestinal irritation; but they should be used temporarily only; given continuously, they caused enfeeblement of digestive power, by superseding the natural function, and appeared to be liable to cause rickets and scurvy. Cases of the kind had come within his knowledge, for which no other cause could be found. Mr. Parker's views upon etiology had, he thought, been sufficiently answered beforehand in his introductory exposition. He must also take exception entirely to the statement that spongy gums and fœtor of the breath did not occur in infantile scurvy. This was not so; these signs were usually present;

his own researches and those of Dr. Barlow had unquestionably established the identity of the condition with the sea-scurvy of adults, both in clinical signs, in morbid anatomy, and in causation.

Glycerin Injections in the Diarrhœa and Prolapse of Children.

I was led to think of the use of glycerin injections in diarrhœa through some remarks which fell from Sir Joseph Lister, when I was consulting him concerning a case of another kind. I have employed it in cases of constipation with excellent results, but the following cases will, I believe, show that it is also useful in certain forms of simple diarrhœa :

Case 1.—A. G. M., male, aged 4, was admitted to the school infirmary, as he appeared to be losing flesh. On admission he was found to be suffering from diarrhœa, his motions being frequent and offensive, and every time the bowels were moved there was prolapse of the rectum to a very great extent. Blood was also passed per anum, and he was in a very weak condition. Various remedies were tried, but he continued to lose weight ; and we became very anxious about his state. I determined to try glycerin, and accordingly two drachms were injected into the rectum. This at once checked the diarrhœa, but as it did not entirely cease I repeated the injection on the second day. From this time the boy began to improve, and although the motions thereafter were not nearly so frequent nor so offensive, nor did the bowel come down so much, I ordered a third injection, which had the desired effect. After the diarrhœa and hæmorrhage had ceased the bowel still came down when he had a motion, but as he gained strength very rapidly the prolapse presently ceased to recur. The diet consisted of cold boiled milk and cold beef tea, with port wine and occasionally jelly. This was a very bad case, and the disease had existed for some time before the glycerin was tried.

Case 2.—H. M., female, aged 4, was admitted with diarrhœa and prolapse of the bowel. The attack was very severe, but in this instance no time was lost in trying other remedies, and two drachms of glycerin were at once injected. The effect was almost magical. The symptoms were checked almost at once, and the little patient, who had rapidly lost flesh during the diarrhœa, rapidly put it on again.

Case 3.—N. R., female, aged 6, suffered from frequent diarrhœa, the discharges being very offensive, and accompanied by excessive wasting. She had been in the infirmary some time, and various remedies, with careful dieting, had been tried, but no benefit was experienced until the glycerin injection was used. As in the other cases, only two or three injections were required to effect a cure, and the little girl was soon enabled to resume her school work. There was no prolapse here, and as in the other cases there has since been no recurrence of the trouble.

Cases 4 and 5.—B. F., male, aged 7, and J. F., male, aged 7, had troublesome prolapse of the rectum unaccompanied by diarrhœa. In these cases glycerin injections acted so beneficially, that in a few days there was no return of the trouble, and the patients were discharged in good health.

I have also tried this remedy in one or two cases, where looseness of the bowels supervened in the course of other affection, such as pneumonia, and the patients' state was such as to render it difficult to decide what was the best thing to give, so as to cause the least possible depression. The following cases will serve as illustration :

Case 6.—E. R., male, aged 6, had a severe attack of pneumonia, with a continued high temperature of over 105° for nearly twelve hours. His motions became very loose and frequent, and he was evidently being weakened by the diarrhœa. I at once injected two drachms of glycerin, and it acted with such singular promptitude and success that it was not necessary to repeat it. The temperature fell after the injection, and the disease pursued its normal course.

Case 7.—M. A. S., male, aged 5, also suffered from pneumonia. His temperature was not excessively high, but his lungs did not clear up well as the disease pursued its course, and he became very weak ; this was the second attack within twelve months. Diarrhœa supervened here as in the previous cases but was at once arrested by a glycerin injection.

Glycerin has been largely used lately in the treatment of constipation, and the paper of Dr. G. A. Carpenter, in the *Lancet*, of November 10, 1888, shows that in children it is markedly successful ; but I have seen no mention of any cases where it has been used for the opposite condition.

I must apologize for the meagreness of these notes, as when I began to use the remedy I had no intention of ever publishing anything about it. Having, however, mentioned a few of the details I have above given to my friend Dr. Lauder Brunton, he strongly impressed upon me the expediency of calling attention to the facts. I do not pretend to say how glycerin acts in these cases, though it is possible that both the diarrhœa and the constipation have a common cause. I will for the present content myself with the statement that in my hands glycerin has proved a valuable remedy, especially in the case of children suffering from diarrhœa or prolapse, and moreover that the injections are easily made, that they seem to cause neither pain nor discomfort, and that their beneficial action is very prompt and complete.—George Rice, M.B., C.M., Edinburgh, December, 1888.

CLIMATOLOGY.

Aiken, South Carolina, as a Health Resort.

Some months ago we referred to the climate of Aiken, S.C., in MEDICAL SCIENCE, and gave a resumé of the principal facts regarding this southern resort for consumptives. The accident of a trip south on a holiday has given us the opportunity of visiting Aiken, and experiencing for ourselves the truthfulness of the statements, which have given to this place its long, well-deserved reputation. We propose to avail ourselves largely of the materials which have for many years been collected by W.H. Giddings, M.D., who, forced through the illness of a member of his family to go to a warmer climate, has resided here for some nineteen years, and who through his work as a physician, specially devoted to lung diseases, has had an unusual opportunity for forming just conclusions on the subject.

Aiken is located on the southern border of what is known as the Sand-Hill region. It is about 565 feet above sea-level, and is the highest point within a radius of a hundred miles. It is 120 miles west of Charleston and 17 east of Augusta.

The Sand-Hill region in which Aiken is situated is a tract of sandy soil of moderate elevation and about twenty miles in breadth, extending through the middle portions of South Carolina and Georgia. Commencing in Chesterfield County, in the northern border of the former State, it extends in a south-westerly direction, until it reaches the Savan-

nah River at Augusta. Reappearing on the other side of that river, it crosses the State of Georgia in the form of a narrow strip, which terminates on the western border of the State. Consisting, as its name implies, chiefly of fine, loose sand, this region in its natural state is so utterly worthless for agricultural purposes that it well deserves to be called the "pine barrens," the name applied to it by many of the natives. But, although naturally so unproductive, the soil of this region contains a certain proportion of clay, which makes it very retentive, so that, by the addition of fertilizers, it may be made to produce valuable crops of cotton and other products. The subsoil of this region is very porous, and water is rarely found at a depth of less than 80 feet, and often it is necessary to dig 150 feet before it is reached. Owing to the porosity of the soil, water disappears rapidly from the surface, so that even the heaviest rains interfere but little with the out-door life of the invalid.

The inhabitants of Charleston and the planters of the counties along the coast were long ago familiar with the extreme salubrity of this favored region, and, as soon as the South Carolina Railroad was completed, hastened to avail themselves of Aiken, not only as a sanitarium for consumptives, but also as a place of refuge from the deadly malaria (bilious remittent or country fever) which rendered their estates uninhabitable during the warmer months of the year. As a proof of the healthfulness of the Sand-Hill region, it is stated in the "United States Census for 1880" that at Platt Springs, a little hamlet in the adjoining county of Lexington, there were in 1879 but two deaths out of a population of 853, and in 1880 only four, and that of these, three of the decedents were over eighty years of age. The sandy soil of this section, as well as that around Thomasville, is covered with forests of the long-leaved pine (*Pinus australis*) and black-jet oak. The former is remarkable for the large amount of resin it contains, and it is the "lightwood" of this tree which affords the bright, cheerful fires which are so attractive to the northern invalid. Whether these trees, by generating ozone or peroxide of hydrogen, really add to the purity of the atmosphere, is still an open question, but it is quite certain that the terebinthinate exhalations from the pine forests around Aiken are exceedingly grateful to pulmonary invalids. Although we may not be able to offer any satisfactory explanation of

their physiological action, there can be no doubt that the presence of large tracts of pine forests add materially to the therapeutic value of a health-resort. In common with all forests, they afford protection against the wind, but in addition to this, for some hitherto unexplained reason, the air of the pine woods is apparently warmer than that of forests of oak and other trees. This is so marked that, on driving through the country on a cold winter day, the entrance into even a comparatively small thicket of pines gives rise to a sensation of warmth similar to that which is experienced on going from the cold outside air into a comfortably heated apartment. Hermann Weber states that he has often found tender exotics growing in a forest of firs to remain uninjured by the severe cold of winter when those in more open situations in the same neighborhood were destroyed.

A wooded country is much more equable than an open plain, a fact which applies to humidity as well as to temperature. Absence of dust, with its injurious effects upon the mucous membrane of the respiratory tract, is another advantage which the presence of pine forests confers upon a health-resort. Eliot and Storer remark in their work on organic chemistry that "the disinfecting power of ozone produced by the action of the atmosphere on turpentine is interesting in connection with the observed facts, that ozone is abundant in the air of pine forests where turpentine abounds, and that pine forests are remarkably free from malaria." This protection against malaria afforded by pine forests has long been known to the rice planters of the coast of Georgia and South Carolina, who, during the summer, as night approaches, retire to their pine-land settlements, and find there a safe refuge from the deadly poison which pollutes the air of the surrounding country and makes it extremely dangerous for a white man to remain there after nightfall.

As regards the meteorology of Aiken the following table gives the mean temperature during the six colder months, and the mean temperature of the months and seasons:—

Mean temperature of Aiken. Period of observation eleven years.

	Deg.
November.....	54
December.....	47
January.....	48
February.....	50

March.....	56
April.....	66
Six colder months.....	53
Winter.....	50
Spring.....	75

The observations at 7 a.m., 2 p.m. and 9 p.m., although not as accurate as the readings of the maximum and minimum thermometers, afford a fair idea of the highest and lowest temperature of the different months, and are of more importance in forming an estimate of the extremes of temperature to which the invalid is subjected. It would be obviously unfair to estimate the average winter at Aiken by the lower temperature which prevailed during the early days of January of the present year, which, judging from its effects upon vegetation, is considered the coldest ever experienced during the last two hundred years. The average range of temperature, as given in the third column, is very moderate for a dry climate like that of Aiken.

The mean temperature of Aiken at 7 a.m., 2 p.m., and 9 p.m., with the average daily range from 1873 to 1884.

	7 a.m.	2 p.m.	9 p.m.	Ran
	Deg.	Deg.	Deg.	Deg.
November.....	49	61	53	12
December.....	42	54	47	12
January.....	42	54	48	12
February.....	43	57	50	14
March.....	49	64	56	15
April.....	57	71	63	14
Six colder months.....	47	60	53	13
Winter.....	44	56	49	12
Spring.....	49	64	56	15

* The difference between the lowest and highest tri-daily means.

On the subject of humidity Dr. Giddings remarks. In forming an estimate of the climate of a health-resort, the humidity of the atmosphere ranks next in importance to its temperature. Judged by popular signs—such as the rare occurrence of heavy dews, infrequency of fogs, absence of condensation of moisture on the walls of houses, the rarity of rust on guns and steel instruments, and of mould on boots and shoes—Aiken would be regarded as exceptionally dry. This is further proved by the absence of the gray tree-moss (*Tilandsia*), which abounds in the Atlantic States wherever there is sufficient moisture to promote its growth. The presence of this moss is not only a sign of moisture, but is popularly regarded as a test

of the healthfulness of a locality, and it is a well-known fact that it abounds in those sections where bilious remittent fever is most prevalent.

Scientifically, the amount of aqueous vapor in the atmosphere is expressed by its absolute and relative humidity. The relative humidity exercises a powerful influence on animal and vegetable life. It is a well-known fact that the inhabitants of a dry climate are, as a rule, thin and sallow, while those living in a moist, insular country have well-developed figures and fresh, ruddy complexions. It is to the greater dryness of this country that we owe the peculiar physique of our people, which is so different from that of our English ancestors.

Hence such climates, although admirably adapted to the treatment of pulmonary diseases, are contraindicated in many nervous affections. This effect is observed even in healthy persons on their removal to a dry climate, or to one of considerable elevation, and exhibits itself in a certain degree of restlessness. Sudden changes in the relative humidity operate very sensitively in a diseased organism, their first effects being a sudden increase or diminution in the blood-pressure. Hence high altitudes, owing to diminished atmospheric pressure, even when combined with a high percentage of relative humidity, is similar in its effects to a dry climate with lower elevation.

The only attempt at a classification of climate, according to its relative humidity, is the rather unsatisfactory one of Vivenot, which is as follows:

1. Dry climates. . . . { a. Excessively dry 1-55 per cent.
 { b. Moderately dry 56-70 " "
2. Moist climates. . . . { a. Moderately moist 71-85 " "
 { b. Excessively moist 87-100 " "

According to this standard, Aiken would rank as a moderately dry climate. The mean relative humidity of Aiken is, however, less than that of any station east of the Rocky Mountains where hygrometric observations have been taken, and during the first four months of the current year was even less than that of Denver, Colorado. The spring is the driest season at both places, the relative humidity of March being lower than that of the other months.

In the following tables will be found a comparison of the relative humidity of Aiken and Thomasville with that of some of the large American cities, and of the leading health resorts in this and foreign countries:—

Comparing the mean relative humidity of Aiken and Thomasville during the six colder months with that of some of the larger cities in the United States.	
	Per cent.
Aiken	57.9
Thomasville	23.2
San Francisco	72.9
Charleston	72.8
Chicago	71.7
San Diego	71.2
Jacksonville	71.0
Boston	69.8
New York	69.8
Cincinnati	67.7
Baltimore	66.3

Comparing the mean relative humidity of Aiken and Thomasville during the six colder months with that of some of the best health-resorts of the U.S., Europe, and Africa.	
	Per cent.
Aiken	57.9
Thomasville	63.2
Pau	82.5
Davos	76.6
Nice	71.0
Meran	67.5
Cairo	67.0
Ashville	63.8
Cannes	66.3

Comparing the mean relative humidity of Aiken and Thomasville during the six colder months with that of some of the larger cities in the United States.	
	Per cent.
Aiken	57.9
Thomasville	23.2
San Francisco	72.9
Charleston	72.8
Chicago	71.7
San Diego	71.2
Jacksonville	71.0
Boston	69.8
New York	69.8
Cincinnati	67.7
Baltimore	66.3

Comparing the mean relative humidity of Aiken and Thomasville during the six colder months with that of some of the best health-resorts of the U.S., Europe, and Africa.	
	Per cent.
Aiken	57.9
Thomasville	63.2
Pau	82.5
Davos	76.6
Nice	71.0
Meran	67.5
Cairo	67.0
Ashville	63.8
Cannes	66.3

This comparison, which is based upon the result of many years of observation, proves that Aiken is from 4 to 24 per cent. drier than all the other mentioned in the tables, and, as the list comprises all the well-known stations for which I have been able to obtain reliable data, Aiken may justly be ranked as *one of the driest health stations in the world*. I have been unable to obtain any information as to the relative humidity of Colorado Springs and Manitou, but, judging from the hygrometric conditions of other places west of the Rocky Mountains, these resorts are even drier than Aiken.

The average amount of rain at Aiken during the six colder months is 23.18. The rain-fall is greatest during the months of March and April, but even in these months it seldom interferes with the out-door exercise of the invalid. Of all the factors of climate, the rain-fall is the most misleading, the total amount varying greatly in different years and seasons. The quantity as measured in inches affords no criterion of the dryness of a locality, as a large amount may fall in a few hours, while a much smaller amount may be distributed over several days. Hence, at health-resorts, the duration of the rain-fall is more important than the quantity which falls. One of the chief objects that

an invalid has in view in going south is to be able to pass most of the time in the open air, and as this is curtailed by long-continued rain-storms, it is all-important to determine their duration.

Average rain-fall and number of fair days at Aiken for eleven years.

	Rain in inches.	Number of fair days.
January.....	3.64	19½
February.....	3.26	19½
March.....	4.86	21
April.....	4.71	23½
November.....	3.43	19½
December.....	3.28	20½
Months.....	23.18	123
Winter.....	10.35	19½
Spring.....	12.83	21½

In studying the rain-fall in connection with the out-door life of the invalid, it is also necessary to take into consideration the character of the soil. If the ground is retentive of moisture, especially if it be composed of admixture of clay, the walks become muddy after heavy rains, and hours, and perhaps days, may elapse before they become sufficiently dry to enable the invalid to walk out with safety and comfort. If, however, the soil is sandy and porous, the water disappears rapidly from the surface, and a few hours' sunshine suffices to dissipate all traces of moisture. This is particularly the case at Aiken, where, owing to the sandy nature of the soil and the absence of all moisture near the surface, the ground dries so rapidly, even after the heaviest showers, that all traces of water usually disappear from the surface within an hour or two, thus materially curtailing the time that the invalid is confined to the house.

At Aiken the prevailing winds are from the south-west, and are remarkable for their extreme dryness. Owing to the north-easterly trend of the North American coast, the north-east wind has to travel over hundreds of miles of the dry pine forests of North and South Carolina, and is thus deprived of most of its moisture before reaching Aiken. Hence, during the first twenty-four or forty-eight hours of the prevalence of such a wind, the atmosphere usually remains clear and bright; indeed, during some of our most delightful days the wind is from that quarter. Strangers occupying houses in an exposed situation are liable to form an impression that Aiken is a windy place, but this is readily dissipated by a walk through the

town proper. A year's observation with a Robinson self-recording anemometer shows that the average velocity of the winds is only three miles and a half an hour.

Direction and velocity of the wind at Aiken during the six colder months.

	Direction.	Velocity—average number of miles per hour.
January.....	S. W. & W.	3.77
February.....	S. W.	3.84
March.....	S. W.	3.79
April.....	S. W.	4.03
November.....	S. W.	2.55
December.....	S. W. & W.	3.04

On looking over the meteorological data as given above, we find that the climate of Aiken during the six colder months (November to April) is moderately cold and fairly equable, with sufficient elevation to insure good drainage and free circulation of air, that the days are fair during two-thirds of the season, and that the prevailing winds are from a dry quarter and of moderate velocity. The winter is short, commencing at Christmas and terminating early in March, the peach trees in Aiken being usually in full bloom by the end of February. Compared with Aiken, Thomasville is by a few degrees the warmer of the two, but, as regards humidity, Aiken is not only much drier than Thomasville, but the driest of all our health-resorts except those located in Colorado and New Mexico.

HYGIENE.

A Simple and Efficient Filter.

BY F. A. CASTLE, M.D., NEW YORK CITY.

For a long time I have used in my butler's pantry a simple contrivance for filtering water used on the table, which has been so serviceable and, at the same time, so inexpensive, that I venture to recommend it. I took an ordinary glass pharmaceutical percolator (A) and packed the outlet with absorbent cotton (B) so tightly that the water could only flow in drops. By means of a piece of copper wire (C) for a bale, it was suspended from a hook on the lower side of one of the pantry shelves, over the shelf of the sink. As often as is necessary, water is poured into the percolator, and the water-pitcher is placed beneath the outlet. Whenever the cotton shows much discoloration (a thing which

is easily observed, owing to the percolator being of glass) the maid replaces it with fresh absorbent cotton. It is in all respects the most practical and cheapest I know of, and has no machinery to get out of order, no patent right to carry, and the advantage over most filters that the filtering medium is always under observation, so that there is little risk of contamination of the water by accumulations of filth.

The Public Schools.

It is gratifying to note the improvement in the sanitary conditions of our public schools. The following is from the report of Toronto's Medical Health Officer to the Local Board of Health, and it speaks well for Toronto's Public School Board.

On the question of Public and Separate school buildings, the Medical Health Officer reported as follows:

An inspection of the school houses and premises of the city was recently made. It is gratifying to state that with two or three exceptions the places were found in a satisfactory state. It is also gratifying to state that the School Boards are earnestly working to secure a good sanitary condition of the school buildings and premises. The Public School Board deserves commendation in having placed the Smead-Dowd system in twelve of the school buildings. There is no doubt that this is by far the most complete method known of securing proper heating, ventilation, and particularly of disposing of excreta.

STATE MEDICINE.

Report on Diphtheria in the Frontier Townships in the Northern Districts of Ontario.

The following report was read and adopted at the regular quarterly meeting of the Provincial Board of Health, February 14th, 1889:—

To the Members of the Provincial Board of Health:

GENTLEMEN,—In again referring to this subject, which during the last two years has from time to time been brought before your notice in reporting outbreaks in localities extending from the Haliburton District on the east, to Chapleau on the Canada Pacific Railway north-west of North Bay, and Manitoulin Island and Cockburn Island to the west, your committee feel that the exigencies of the case are such as to demand such comprehensive action as will aid in recommending and establishing some permanent system of dealing with outbreaks in these outlying districts.

Last year our Medical Inspector, Dr. C. S. Elliot, reported on the North Bay and Sundridge outbreaks. Your secretary has reported on outbreaks about Lindsay, Kinmount, and Minden; and Dr. Lehman, whose report is herewith incorporated, has further reported on the districts south and north-west of North Bay. The reports in every instance repeat with sad iteration the progress of this fatal epidemic disease—at times becoming epidemic in the sense that attacking all the members of one or several families in a neighborhood,

it not infrequently sweeps them all away, or leaves only heart-broken parents to mourn their offspring and their fruitless attempts to bring up a family of children, who would be not only companions to them in their isolation in the scattered settlements of the back woods, but later on, helpful hands to aid in that labor so necessary there to obtain, not affluence, but comfort in their declining years, in homes whose exiguous means is aptly defined by the classic expression *angustas vias*, the euphemism for poverty.

To ameliorate the conditions of life amongst those hardy settlers, who, with adventurous spirit, have chosen to leave their homes in older parts of Canada and hew out homes from the forest, or who in many cases, have, with the spirit of our forefathers, been lured from England to the back woods by the siren voice of the emigration agent, who has filled them with dreams of an arcady, where the rivers swarm with salmon and the cold winter is but beautiful in its opportunities for recalling the myth of Diana and re-establishing the English hunting ground in a western land, in both cases, with varying degrees of necessity, our work is the same. The conditions briefly summed up are:

1st. *Sparse Settlements.*—These may be made up of from two or three families to three or four hundred settlers in a township.

2nd. Very limited means in the great proportion

of instances, making the result a small house of one, two or at most three rooms. We have recently had by Profs. Carnelley and Jamieson, and just now Dr. Russell, of Glasgow, illustrations of how mortality there, increases regularly with decreasing rooms; but there can be no surprise that with infectious disease, where saprophytic decomposition, products of exudation in the pharynx, etc., are being constantly exhaled in a house 12x16 feet, that the air with closed doors becomes that of a charnel house and as deadly to the helpless children, awaiting their turn, and not seldom to the worn-out and heart-broken mother who has seen one after another of the lambs taken out from her fold.

3rd. House to house communication, for, while settlement is sparse, it is most common to find that through accident of location by lake, stream or on goodland, the few settlers in a township tended to build convenient of access to each other. Pressing need in a stricken house, and human sympathy cause one neighbour to go and enquire and at times go in to aid in nursing, or at any rate sit down to discuss the situation, thereby doing all necessary to carry the infection on their clothing from so pestiferous an atmosphere to their children at home. Thus Dr. Curry of Minden, has stated, that along one concession line, of a number of houses, only two escaped having cases of diphtheria and they were new comers not acquainted with the previous settlers.

4th. Distance from medical aid and supplies, and absence of municipal sanitary supervision and control. This is exemplified by Dr. Lehman's report on the townships of Nipissing, Gurd, Patterson, Hardy, McConkey, etc., "all unorganized, containing a considerable population of settlers and lumbermen, having a very large number of cases of Diphtheria with percentage of deaths very large, no medical attendance, sanitary condition very bad both as to dwellings, water supply, garbage and privy regulations."

5th. *Lumber Camps*.—These complicate the problem very notably. Not only do the crowded shanties become, as it were, permanent seats of infection, affecting susceptible persons from time to time during successive winters, but sick men from them are sent out to the nearest settlement, to which they not infrequently spread the infection, or still further spread the disease by travelling in hot and crowded coaches (to southern points where

they live) to seek hospital and medical accommodation and assistance. Such are the prominent factors in the problem. While it is true that many of the same conditions prevail in well-settled communities, yet it may fairly be said that while in the latter the people are in a position to help themselves, in this northern country the conditions are such as to make action impossible. The few poor and scattered settlers, are not organized into a municipality, and even if they were the four or five hundred dollars they raise annually are spent in roads and bridges. Schools in these new districts are largely supported by Government. The lives of the settlers must to some extent come under the aegis of a paternal government.

But how to do this best is the problem. In the materials collected we have it made evident that there are a number of prominent points in the different districts from which work will have to be done.

Beginning as Dr. Lehman has done in his report we have:

1. Sundridge District—Dr. Toole, Med. Health Officer.
 - South (a) Armour—organized, including Burk's Falls Village.—Dr.
 - West (b) Chapman—organized, including Magnetawan Village.—Dr.
 - North (c) Machar—unorganized.
 - (d) Laurier—unorganized.
 - East (e) Joly—unorganized.
2. Powassan District—Dr. Porter lives there.
 - (a) Himsworth—unorganized, includes Powassan Village.
 - West (b) Gurd—unorganized, includes Commanda Settlement.
 - North (c) Himsworth—organized, includes Callender.
 - North-West (d) Nipissing—organized.
 - (e) Patterson, Hardy, Mills, McConkey, Wilson—unorganized Lumber Camps.
3. Suggested new District to be worked from Commanda.
4. North Bay District—Dr. Caruthers, Med. Health Officer (in organized township of Widdifield).
 - North (a)
 - (b)
 - (c)
 - (d)
5. East Nipissing District—Mattawa has a physician.

- (a) Ferris—unorganized.
- (b) Bonfield—unorganized.
- 6. North Nipissing District—
- (a) Springer.—organized including Sturgeon Falls.
- (b)
- (c)
- 7. Sudbury District—Physician in Sudbury.
- 8. Chapleau District—Dr. Arthurs, (C.P.R.)
unorganized.
- 9. Algoma Mills District—Dr. Struthers, (C.P.R.)
- 10. Schreiber District—
- 11. Byng Inlet—
- 12. Manitoulin Island District—
- 13. Haliburton District—
Townships.
- 14. Minden District—
Townships.
- 15. Kinmount District—
Townships.

This summary of Districts while tolerably complete, might yet be extended; but for present purposes temporary organization on this basis may be considered. Without discussing the various possible ways of dealing with the problem, it may be said, that, after due consideration the following plan would seem to suggest itself as being the most practicable.

1st. For the Districts named, with such alteration as a more intimate knowledge of the directions in which communications are found easiest, it is desirable that physicians be appointed who might be called District Medical Health Officers, and who through such amendment of the Public Health Act, as the Law Officers may find necessary, would be clothed with all the powers at present laid upon Medical Health Officers of Municipalities, and such other powers as the conditions might require. Their duty would be to exercise a general sanitary supervision of their Districts and give the District Sanitary Inspectors such aid in the stamping out of outbreaks of disease as the emergency might demand. They need not be while regularly appointed, expected to act except when specially called upon by the Inspectors.

2nd. For each of the various settlements separated often by many miles there would seem to be but one method of giving them effective aid and that would be by having in each some competent man, a Provincial policeman where possible, appointed a Sub-District Sanitary Inspector, with

all the powers at present laid upon Sanitary Inspectors of Municipalities, together with such additional duties as the conditions might demand. Amendment to the Public Health Act, would in this case likewise, be needed. These officers would be on regular duty at all times, and on them would devolve the every day inspection and supervision of the sub-district set apart to each.

Should a case of zymotic disease occur, he should be empowered to at once by methods prescribed from time to time by the Board, so act as to isolate the patient, or family as the case may be, see that the District Medical Health Officer—if no family physician was available—give professional service at their own or the public expense, as each case may require.

Water-supplies, cleanliness of premises, and such regular sanitary work as is carried on in any efficiently supervised municipality, would give these officials abundant work, while it would educate the people to the observance of sanitary law, until such time as the development of settlement would cause them to be organized on a self-governing basis. The work of organizing this system will demand much careful attention in order that the most effective results can be obtained, and the fewest possible mistakes in details made.

Your committee would recommend the adoption of the report and that a committee of the Board be empowered to present the urgency of the matter to the Minister of the Department, in order that he may take such measures as will best carry out the views of the Board. All of which is respectfully submitted.

Signed { FRANCIS RAE,
C. W. COVERNTON, } Committee
{ PETER H. BRYCE, } on
Epidemics

Adopted.

Feb. 14th, 1889.

FRANCIS RAE,
Chairman.

The following is Dr. Lehman's report on the sanitary condition of the Nipissing district, during the closing months of the past year. Dr. Lehman, having been specially appointed to examine into and report on the causes which seem to be productive of diphtheria and allied disorders in that sparsely settled region, has taken pains to obtain accurate information on the matters in question and our readers will find his narrative both interesting and instructive. His report was read immedi-

ately after the report of the Committee on Epidemics, and was received and adopted:—

To the Members of the Provincial Board of Health:

GENTLEMEN,—I have the honor to present to you the report of work done in the districts of Parry Sound, Nipissing and Algoma in connection with the outbreak of Diphtheria, beginning at the village of Sundridge, in the organized Township of Strong, on the Grand Trunk Railway, about 45 miles south of North Bay.

Last year there were 12 cases of Diphtheria and 5 deaths in the Township of Strong a little west (5 miles) of Sundridge. With a Board of Health and an active Medical Health Officer, Dr. Toole, it was soon stamped out. This year there have been a number of cases of a very mild type of Diphtheria, with one death.

South of Strong is the township of Armour, organized, including Burk's Falls, and West Chapman, also organized, with the village of Magnetawan at both of which villages there are licensed practitioners. To the north of Strong are the townships of Machar and Laurier, and directly East Joly, all unorganized, and all lying conveniently to be handled by the Medical Health Officer at Sundridge.

In all of these townships there have been a large number of cases of a mild type of Diphtheria, the type becoming more malignant, as we go north towards Lake Nipissing, and west in the townships lying to the south of and bordering on French River. North of Laurier along the line of the G.T.R. is the township of Himsworth, unorganized, including the village of Powassan. West of Himsworth is Gurd, also unorganized, and including the small village of Commanda.

North of Himsworth is the township of North Himsworth, organized and including the village of Callander on Lake Nipissing.

West of the townships of Nipissing and Gurd are Patterson, Hardy, Pringle, Mills, McConkey and Wilson, all unorganized, and containing a considerable population of settlers and lumbermen, having a very large number of cases of Diphtheria, with percentage of deaths very large.

No medical attendance, sanitary condition very bad, both as to dwellings, water supply, garbage and privy regulations.

A Dr. Kidd has lately settled at French River

P.O. near the mouth of French River, and goes as far east as the edge of McConkey, and the doctors at Powassan and Sundridge go as far west as Commanda; but the half dozen townships above named, lying between, are entirely without medical help, and the disease goes on without any attempt to check it. Dr. Porter at Powassan has had under observation in the village and country surrounding 38 cases with 11 deaths.

The water supply of the district, at all times bad, is this year much worse on account of the exceedingly dry summer, followed by very wet fall. The wells are nothing more than holes, a few feet deep, dug in the beaver meadows, which dried up in the summer, and, when the fall rains began, filled up with surface water, poisoned by decaying animal and vegetable matter, the privy and stable being very often in close proximity to the so-called well.

The villages and townships surrounding being unorganized, isolation is impossible, fumigation is carried out in some cases in the villages, but most people in the country are very poor and careless about such matters. In many cases, there is no money to pay for carrying out the regulations, and in none is there law to enforce them.

About 20 miles north of Powassan is North Bay a rapidly growing village, at the junction of the G.T.R., and C.P.R., in the township of Widdifield.

The village is not yet incorporated, but the township is organized and has a very efficient Board of Health with Dr. Carruthers M.H.O., Mr. Ferguson Reeve and Chairman of the Board, and Mr. Cormack, Druggist, Secretary.

It is expected that the village will be incorporated next year, after which the Board of Health will endeavour to get enough assistance from the government and railroad companies, to enable them to build a hospital.

There have been so far this season at North Bay 16 cases of Diphtheria with 4 deaths. The first case occurred in Dr. Carruthers' family. An old privy of construction days, situated on the next lot and very close to the doctor's house was removed a short time before the child took ill. The stirring up of this old privy matter may have had something to do with it. The water supply at present is largely drawn from the lake by teams. There are also some wells, which, generally speaking, are in pretty good condition, but a few of them bad.

In the houses where Diphtheria occurred people were using what appeared to be good water.

Drs. McMurchy and Howey of the C. P. R., are also at North Bay.

There are some good townships north of North Bay, and the government have opened a new road from North Bay to Lake Temiscamingue, which will be rapidly followed by settlement and lumbering operations, and, if better regulations are not observed, an outbreak of Diphtheria or some other contagious disease in a year or two.

East of Lake Nipissing are the organized townships of Ferris and Ronfield, and the country is partially settled all along between the Lake and the Ottawa River.

In all this territory there have been a very large number of cases of Diphtheria, but of a mild type and few deaths.

There is a licensed doctor at Mattawa. West of North Bay, there are scattered settlements along the line of railroad for seventy or eighty miles. The township of Springfield, including the village of Sturgeon Falls, is organized, but there is no doctor between North Bay and Sudbury, where there is extensive copper mining, and the mining company have a doctor north-west of Sudbury. For several hundred miles along the main line, there is no settlement nor lumbering and never will be. Chapleau, a village of about 500, about 250 miles from North Bay and composed entirely of railroad men and traders who supply them, has had an outbreak of the most malignant type of diphtheria. So far, 18 cases with 10 deaths. The C. P. R. Co. have a hospital, and Dr. Arthur is the C. P. R. surgeon in charge. Dr. Struthers who is stationed at Algoma Mills was also at Chapleau assisting Dr. Arthur at the time of my visit.

The C. P. R. are very liberal and although they had gone to several thousand dollars expense for draining previously, when the diphtheria broke out, at the suggestion of the doctor, they put in a new drain which cost \$2,200.

The Company also have very good water pumped

up from the lake, and offer to supply all the people from their tank free of charge. They can compel their own employees to use proper water and clean up their privies and garbage; but the other people, who have bought lots and built their own houses do just as they please, and the consequence is a most deplorable condition of sanitary affairs. The land is low and swampy, water can be obtained by digging a few feet. The soil being of coarse sand and gravel is very porous and allows the soakage from the privies, stables, and garbage heaps to get into the wells.

At Schreiber, 150 miles north-west of Chapleau, a few cases occurred with conditions very similar to Chapleau.

The thing most urgently needed in all the unorganized districts is some person, whether medical man or not, who will have sufficient authority to compel people to clean up their privies and garbage heaps and use the best water available.

For the Parry Sound district the doctors at Parry Sound, Magnetawan, Burk's Falls, Sundridge, Pawassan, and French River might be appointed Medical Health Officers for the respective townships in which they live, and the unorganized townships adjoining them, and then, if a couple of other doctors were given some encouragement to settle in the district, for instance one at Com-manda or a little further west, and another, say at Byng Inlet, between French River and Parry Sound, the District of Parry Sound would be pretty well supplied. The Powassan District might include the neighbouring township of Nipissing; North Bay, Mattawa, and Sturgeon Falls, might also be centres for districts. While, farther west along the main line of the C. P. R., where there are no settlements, might be conveniently and cheaply handled by the C. P. R. doctors. Their having free passes over the railroad would enable them to do the work of inspection at much less cost.

Your obedient servant.

W LEHMAN, M.D.,

Medical Inspector.

REPORTS OF SOCIETIES.

Toronto Medical Society.

The following is an abstract of a paper on "Intubation of the Larynx in Diphtheretic Laryngitis," read before the Toronto Medical Society on Feb. 5th, by Dr. Palmer:—

Dr. Palmer reported nineteen cases, of which five recovered. They were all cases of true diphtheria, and operation was delayed in every case till the dyspnoea was extreme and the patient cyanotic and death apparently inevitable.

Three of those cases were operated on to relieve the dyspnoea and distress, where the malignancy and sepsis were so manifest as to forbid hope; three died of sepsis, two died of heart failure, nine died of extension of the exudative disease into the bronchi. Of these nine, five gave good promises of recovery for two days after the tube was inserted. The other four were of such malignancy that hope was not entertained.

The doctor dwelt on the impossibility of diagnosing the condition of the lungs in these cases of extreme dyspnoea, the quantity of air entering the lungs is so small, that chest sounds are inappreciable, and therefore it is impossible to know the condition of the lungs before operation, a fact which stands against tracheotomy; for if the lungs were known to be already involved, so serious an operation as tracheotomy would not be performed, whereas the simple bloodless operation of intubation would still be advisable in view of the relief it would afford.

After the tube is introduced the bronchi are found in those cases where extreme dyspnoea had continued for some considerable time, to be more or less obstructed with mucus, due, doubtless, to venous engorgement of lungs and bronchi, from continued stenosis. These mucous rales soon disappear after air is freely admitted and respiration exhibits the true normal vesicular murmur or such gradations from this as furnish fair evidence for prognosis.

In certain cases after the tube was introduced the patient was bright, respiration free, and normal vesicular, with this exception, that it seemed metallic or slightly hard, or had lost some of its soft breezy quality. No rales; no dullness.

In all these cases a fatal result followed in from two to five days. He believed this quality of respiratory murmur, due to the incipient stage of the exudative process in the bronchi. They had not yet thrown out the exudate, but the mucous membrane was swollen, thus lessening the lumen of the tubes and changing the quality of the sounds. With this symptom present, the prognosis is bad, even though the patient is bright and otherwise hopeful.

In another class of cases where the dyspnoea was extreme, the chest walls were found *stationary, no recession, no movement of the larynx* to and fro, as is characteristic of pure laryngeal stenosis. Here the stethoscope reveals, after the tube is intro-

duced, coarse and fine bronchial rales, and a generally emphysematous condition of the lungs.

In these cases where the disease extends to the bronchi the large plugs of mucus formed, and portions of exudation that become more easily detached in the bronchi, prove factors in developing rapidly an acute emphysema. This combination of conditions make the lungs too large for the space they have to occupy, and thus prevent the recession of the chest walls.

This condition being also a cause of part of the dyspnoea, the extensive movements of the larynx, so manifest when the dyspnoea is due to stenosis of the larynx alone, are consequently very much reduced.

When extreme dyspnoea is due to stenosis of the larynx alone, we find movement and recession of chest walls and extensive movements of the larynx up and down. If, therefore, in extreme dyspnoea, the chest walls are more or less *motionless*, with *no recession* and the larynx quiet, we may be sure of extensive exudation into, and engorgement of the lungs, with possibly acute emphysema. This symptom is of value, as the stethoscope, in this extreme dyspnoea reveals nothing. Tracheotomy here would be worse than useless. Intubation would give merely temporary relief.

The sources of danger ascribed to intubation are:

1. Apnoea and laceration of tissue by prolonged efforts at introduction.
2. Forcing down the tube in efforts at removal and injury to the parts. (None of which should ever happen in the hands of an expert.)
3. Interference with deglutition and nourishment. (This may be overcome with jellied foods, soft egg, custards, etc.)
4. Occlusion of the tube and trachea by pushing down the trachea before it. (This is overcome by immediately withdrawing the tube when the false membrane will follow it.)
5. Ulceration of trachea by pressure of the tube and consequent sepsis and necrosis. (This must be very rare indeed, as the tubes do not press upon the trachea.)
6. Traumatic pneumonia from passage of food into respiratory tract. (Avoided by using food in some solid form.)
7. Coughing up the tube and swallowing it. (No objection to this but the temporary loss of the tube.)

The sources of danger of tracheotomy are :

1. Hæmorrhage ; (which an adynamic disease is intolerant of).
2. Erysipelas, (by no means infrequent).
3. Gangrene.
4. Necrosis of cartilage. (Not always easy to prevent because of the shape of the tube and the possibility of its bearings being changed and rendered unduly heavy by reason of swelling.
5. Sepsis through the wound.
6. Ulceration of trachea and sepsis therefrom.
7. Plugging of desiccated mucus about the lower inner end of the outer cannula, which may

not be removed by the removal of the inner cannula, and sudden asphyxia and death.

Considering the gravity of these dangers, the possibility of their occurrence, and indeed their frequency and uncontrollable character, the impossibility of diagnosing the condition of the lungs in those cases of extreme dyspnoea and the dread which the friends of a patient always have of a cutting operation, and comparing them with the sources of danger in intubation in which the results are not inferior, intubation in diphtheritic croup should be advised as generally preferable to tracheotomy.

CORRESPONDENCE.

FROM OUR SOUTHERN CORRESPONDENT.

To the Editor of MEDICAL SCIENCE:

AIKEN, Jan. 15th, 1889.

It seems hardly possible that within so short a time, it is possible to separate oneself from the blinding storm and blizzard which, occurring, on January 9th, caused so much destruction throughout the Northern States and Canada, and to find oneself in a climate, where roses and camelias are in bloom in the outer air, where ploughing and planting have been begun, and the catkin blossoms are appearing on the salix in the damp grounds along the streams. Yet so it is, and the warm rains during the past week and the chirrup of frogs, all proclaim, that spring has come at a moment when the newspapers tells us that Montreal rejoices in three feet of snow, and that the glories of a Canadian winter are only just beginning.

To our readers it may not be wholly uninteresting to give in something like a connected manner, the incidents and progress of our trip to the south, our party consisting of three Canadians, whom our negro *femme de chambre* euphemistically calls "quite a gentl'men squahd." The journey to New York took about twenty hours, and there having arrived, we found convenient quarters and spent a glorious twenty-four hours with a bright sunshine, which many were found enjoying, basking in it sitting on the seats in Madison Square. We made calls on several old friends, and found Dr. William Porter, a friend known to many Canadians, in good health and spirits, and Dr. Albert H. Buck engaged

in his cosy quarters up town, alternately between seeing patients and editing proof for what may be called an encyclopædia, "Wood's Reference Handbook of the Medical Sciences." The state of one of the trio's health caused the propriety of taking steamer south, in preference to the tedious railway travel, to be seriously discussed, and after deliberation we decided to take passage on the splendid steamer Talahassee, of the Ocean Steamship Company's Line, for Savannah. Our choice was a fortunate one, and during the fifty-four hours of the passage we enjoyed an ocean voyage which proved in every way to be almost everything that could be desired. Our greatest invalid began the first evening on board to eat meals with a relish to which he had been a stranger for weeks, and his appetite has gone "with a gallop" ever since. Similarly, sleeping, which with all of us had been at a premium for some time past, came to us under the soothing influences of the ocean breezes, and nothing but pleasure was with us until we began to round Cape Hatteras.

The most that could be said of it was that the sea was a choppy one, and the vessel rolled, when no longer steadied by the wind in her sails, to an extent which placed one of us *hors de combat* in a very uncompromising manner. Our third day was perfect. Running southwesterly along the coast of the Carolinas, we met vessels coming from Savannah, Charleston, and the Indies, the major portion going to that wonderful port of New York, the emporium for a whole continent.

By sunset we came in sight of the mouth of the

Savannah, a broad stream opening into the ocean by several mouths or passages through the rice lands and salt marshes, which run up the river for fifteen miles, as far as the city of Savannah itself. With high tide we managed to cross the sandbar at the mouth without any delay, and for two hours followed the tortuous course of the stream, while damp, malarial odors coming up from the marshes made it prudent to remain within doors. Redolent, too, was the air with the peculiar odors from barges and docks, laden with guano, the makeshift and temporary fertilizer extensively used by the farmers on their cotton lands. Next morning we went ashore in the quaint old southern city, which escaped bombardment during the war, but still showed many evidences that something most serious has occurred to prevent its steady progress. There are remains of its early beauties; and it is only now that, with some degree of returning prosperity, the people are taking courage, and works of improvement are being undertaken. A day was spent here and proved to be of more than ordinary interest, as a municipal election was in progress. It reminded me of the good old days in Canada when the people used to assemble in a crowd at the halls. The two parties both claiming to be democratic, divided on the lines of the "American party" of the clubs, and the "citizens' party," called by the other, the "German party," since its candidate was a rich German baker.

The younger men of the old south, who gave the complexion to the American party, are proud, slow to give up their supremacy in public affairs, so long theirs, and are imbued with an undying hatred of the negro and *his vote*. With much reason do these feelings arise, for about the booths it was only too patent, that it was the negro vote that each was bidding for. Street-fighting which was feared, fortunately did not amount to much, and the services of the medical contingent from the north were not called into requisition. It was noticeable that a physician was a candidate on the citizens' ticket and received general support. Why should they not always do so? A run on the belt-line around the city, showed its commencing expansion, and the suburban colored shanties on every side. Thereafter we walked down Bull Street, which is a continuation of parks and squares with imposing monuments in each. The Central Park is truly beautiful, even at this season

of the year, with fountains playing and here and there a rose or camelia in bloom. The houses are built after the ordinary southern pattern, usually square with two storeys, and built mostly of frame; although the stores and other buildings on the main business streets are brick. It was natural that notes should be made on the sanitary conditions of the city. The soil is mostly a white sand, covered with a thin mould, and almost no attempts have yet been made at paving. Yet there are in existence and in process of construction several pieces of asphalt. Although the streets are not more than a chain wide, there is running east and west in the rear of each lot a good wide lane, which is kept fairly clean. Here and there are paved gutters, and but few attempts at a further system of sewers have been made. Emptying at the foot of Main street, however, on the *quai*, is a small-sized sewer, the sewage from which trickles away over the *quai* to the red waters of the Savannah. Were the town not supplied with a pure water from artesian springs three or four miles to the west of the city, it would be in a sorry plight indeed; but this, with a soil which seems to have an almost infinite capacity for absorbing water, seems to allow the town to get along tolerably safely with privy pits. The lands at Savannah, while low, are nevertheless in the main portion of the city, probably fifty feet above the ordinary level of the river, so that constant filtration will prevent a permanent soakage of the soil. From this city our train took us for a hundred miles in a north westerly direction across a country, which from its flat character and the presence of the white sand everywhere, covered with small second-growth pine forests, may fairly be called a "barren." Almost no cultivation existed for seventy-five miles, till Millen was reached. Then the country became more rolling, with here and there a little clay, the whole reddened by oxide of iron, appearing quite like red ochre. Cotton fields were now and then to be seen, but runs for miles would show no cultivation, and not even a negro's cabin. As Augusta was approached, the general appearance somewhat improved, as this city of 45,000 came in sight. It is quite an enterprising place, having some six large cotton mills, supplied by a canal run from above the city along the side of the Savannah. Last autumn, however, floods rising some thirty feet, devastated a large portion

of the city, causing a loss of \$2,000,000. The general appearance of the town is like that of Savannah, with however a rather more retentive soil, and when seen after a heavy rain, by us, having more mud on the streets. Fortunately for the cities, pure water can be obtained from springs and flowing wells; for underlying these sand barrens, is subterranean water in unlimited amounts, the dip of strata being eastward from the mountains in the western parts of Georgia. But away east by north we speed to our destination, Aiken, some sixteen miles from Augusta, on the South Carolina side of the Savannah. This is upland from 300 to 500 feet above the sea, appropriately called the "pine barrens." The red coloring of the argillaceous sand is everywhere in the railway cuttings, these being furrowed with the runlets caused by the waters from the hills above. It is in many places quite picturesque to see the hills with their furrows and denuded sides, shining red, brown and yellowish, even spotted with white here and there, as the amounts of coloring matter in the soil varies. But everywhere, whether over hills or through the valleys, is the same covering of whitish sand along the roads, or wherever the thin mould is worn off. Scrub-oaks predominate, but on the lower grounds, with a little more soil, pines grow in some instances to two, or perhaps three feet in diameter. Irregular patches, even quite large fields, are here and there seen, where the scrub has been cleared away and cotton or corn has been planted. But there are very few farms in the sense that we understand them in Ontario. One sometimes wonders what support the very considerable rural population, composed mostly of negroes; but when it is remembered that their lives are almost wholly outdoor, that each has the opportunity of doing a little farming, having a mule, if very little else, it will be seen that by cutting wood, etc., they manage to live and are healthy. This leads us to speak of the houses. The cabins almost invariably are built on brick supports, thereby leaving the floor one or two feet off the ground. When it is considered that this is done where the soil is so dry, from apparently some necessity, it makes the difference more striking when we compare this with the wooden houses in the north, especially the old log and frame houses in the country. Here there is almost no diphtheria; there, alas! we know too well what it has come to mean in Ontario. At

Aiken, and indeed all through this neighborhood, life moves on for the natives in a natural and uneventful, but eminently healthy manner. To-day, for the first time, we have had a severe cold snap, there having been some five degrees of frost. The old-fashioned fireplaces, however, and an abundance of oak and pine logs lend to the house-air a freshness and cheerfulness, foreign to your rooms with their hot-air furnaces and their base-burners. We are enjoying the evenings in such rooms, and the days in riding horses and playing at the exciting, though perhaps rather dangerous, game of polo.

If fresh air will invigorate, we are improving under it at Aiken.

P. H. B.

DELAYED DELIVERY OF THE SECOND CHILD.

To the Editor of MEDICAL SCIENCE:

SIR,—The following extract is taken from George Wood's "History of the Isle of Man," published at London, England, in 1811:—

"In the parish of Kirk Christ Sezayrê, one, Robert Cottier's wife was delivered of a child, which was baptized upon the Monday, and she came to be churched upon the Wednesday next after; and after returning home she fell in labor and was delivered of another child, and came to be churched upon the Saturday next after, in the same week. Churched twice in the same week! This I testify to be truth."—EDMUND CROW, MINISTER.

"I find by Chaloner, that in the year 1653 there was an Edmund Crow minister of this parish."

The interval which elapsed between the births of the two children is not mentioned, though the fact that the mother was churched twice in the same week is carefully recorded, it being natural that the minister would attach more importance to the ceremony in which he was personally interested. It is quite in keeping, however, with the narrative, to suppose that a week or more must have elapsed between the births of the two children.

In *The Gentleman's Magazine*, 1814, we find the following:—"A woman was delivered on the 4th of March, 1814, of two children. She found herself so well on the second day, that she rose to attend to her affairs; but on the 6th she was again delivered of two more."

"In all such cases," as Casault says, "our rules of conduct should be based upon the condition of the womb itself, rather than on the length of time that may have elapsed since the birth of the first child; because it must be evident that relaxation and inertia of this organ would forbid all attempts at extraction, and that we should never endeavor to deliver the second child before having excited the organic contractibility of the uterus by all the

available means. If by chance these measures prove inadequate, it will be better to wait several hours, or, if necessary, even for several days, rather than expose the woman to the terrible consequences resulting from inertia."

I remain,

Yours sincerely,

J. J. CASSIDY.

119 Church Street.

GENERAL NOTES

A LITTLE knowledge is a dangerous thing.

"And what's the little darling's name?"

"Well. You see he's our eighth child, so we've had him christened 'Octopus.'"—*Punch*.

THE municipal authorities of Moscow have voted a large sum of money towards the establishment of a hospital for incurables, as a thank-offering for the escape of the Czar, on the occasion of the late railway disaster.

AN international exhibition of Elementary Substances will be opened at Cologne, on May 18th, 1889, and will remain on view until Oct. 15th, of the same year. Austria, Hungary, Great Britain, Russia, Italy, Holland, and Belgium, are already named among the nationalities to be represented.

DES MOINES, Ia., has a crematory for the city refuse which cost only \$1,700. As an indication of its effectiveness there was at one time recently burned in it, in one hour, two dead horses, seven dogs, eighteen barrels of garbage, three hods of manure, fifteen bushels of rotten eggs, and three barrels of rotten fish, and no offensive smell was emitted.—*Ex.*

SPEAKING of the effects upon woman of the numerous operations upon her genital apparatus, the *Medical Press* says: "Shorn off her clitoris on account of her masturbating habits, of her tubes and ovaries for suspected pyo-salpinx, and of her uterus for possible fibroids, she will gaze with pity and wondering contempt on the passions which animate her fellows."

A LEAN, misanthropic physician, in a small hamlet, had as his only opponent a handsome robust man. The strife between the two was violent. One day a lady asked the first why he was continually in bad health, whereas the other was so well all the time. "You see, madame," he replied, "the only man who can treat him I am, the only physician whom I can get is he."—*Paris Journal of Medicine*.

IN Alabama, a black negro girl, about 18 years old, has given birth to twins at seven months, one of which is as black as the ace of spades, and the other as white as any white child her medical attendant ever saw. This is as puzzling as the case recently reported, in which a beautiful young woman, with a tinge of negro blood so light as to be imperceptible, married an unsuspecting white gentleman, and in due time presented him with a black baby.

THE opening of the new hospital at Villanova, took place on December 6th, 1888. The hospital has been entirely built by Verdi, the composer. It is a large building and eligibly situated. There are two wings, one for each sex, with a separate ward for contagious diseases. There is also a hydropathic establishment; and ample arrangements for the disinfection of linen and other sanitary purposes. An efficient staff of nurses and attendants is also provided. Verdi has deposited adequate funds for the future maintenance of the hospital. On the opening day twelve patients were admitted.