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A MONTHLY JOURNAL OF

MEDICINE AND SURGERY.

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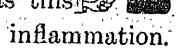
a Medium can, and heat by placing the can in hot water. Do not delegate its application the first time to some one who has never seen the thing done, but personally apply the entire contents of the can to the affected joint, spreading it on the skin as thick as this  about the joint and beyond the boundaries of the inflammation. Cover with a liberal amount of absorbent cotton and a suitable compress. At the expiration of 24 hours, or when the dressing can be peeled off nicely, remove it and apply a new one. After a few days the affection will, as a rule, be but a memory.

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A MONTHLY JOURNAL OF MEDICINE AND SURGERY.

VOL. XVII. HALIFAX, N. S., DECEMBER, 1905 No. 12

Original Communications.

ADDRESS ON OPHTHALMOLOGY.

By J. W. STIRLING, M. B.,

Lecturer on Ophthalmology, McGill University.

Mr. President and Gentlemen:—I have to thank you for the honour you have done me in asking me to deliver the special address on ophthalmology at this meeting of the Canadian Medical Association, and more especially do I appreciate it from the fact that this meeting is held in my native city. One cannot but feel a certain amount of diffidence in addressing such a large assembly of one's fellow workers in our noble profession, but I trust that what I have to tell you may both be of interest to you, and also of some assistance in the prosecution of your professional calling.

I must claim to a certain extent the indulgence of my fellow workers in ophthalmology, who may be here, if I do not present them any thing very advanced. I would remind them of the fact that I am here to deliver an address to the profession as a whole, and that technical points which would be of interest to them might be far from interesting to the majority of my hearers. Yet what I have to say may not be lacking in interest for them.

I have chosen as the subject matter of my paper a few salient

points in the diagnosis and treatment of some of the more common diseases of the eye. My communication will be almost entirely based upon my own experience drawn from the very large clinical material at my disposal in the Montreal General Hospital.

Conjunctivitis is one of the commonest eye diseases which confronts both specialists and general practitioners during their career; yet in no other ocular disease has there been more room for advance both in the matter of diagnosis and of treatment. Happily during the past few years great progress has been made in both these particulars and the results have been crowned with success. Looking back over my comparatively short career, well do I remember, how in the old hospital days in London there was a routine treatment for conjunctivitis; the diagnosis was strictly limited by the nature of the secretion and condition of the conjunctiva, and the treatment consisted in the use, or I might rather say the abuse, of various astringents. In some cases this treatment happily hit the mark, but in others the result was a failure, or else a prolonged chronicity. With the promulgation of the germ theory, there was an opportunity for advance, yet but little was done in this direction in eye diseases for some years. Astringents were at this time dropped to a certain extent, and antiseptic lotions took their place; yet a varying amount of empiricism persisted and results were not always so successful as one could wish. During the past few years, however, great strides have been made by Koch, Weeks, Morax and Axenfeld; new germs have been discovered; their relationships to certain forms of ocular disease have been worked out; the conditions especially favouring their development have been studied; the symptoms they give rise to have been noted; and lastly, what is of most importance to the clinician, appropriate remedies are being discovered. There is, however, much left to be done, as evidenced, for example by the uncertainty which overhangs the germ of that scourge, trachoma.

To start with, be it remembered the conjunctival sac in the new born is held to be free from bacteria, but immediately the infant has entered on its existence in this world, the conjunctiva is exposed to infection from the atmosphere or from the skin with which it is in immediate proximity at the edges of the lids. The organisms thereafter found in the eye vary greatly in their nature and pathogenicity. Their malignancy depends a great deal upon the resisting power of the

organism. It would appear that it is impossible to render the conjunctival sac absolutely sterile, since any bactericide sufficiently strong to effect this would exert a deleterious influence on the eye. The tears exert a certain bactericidal action which may be due to a mere dilution of the secretion, and this is seconded by the muscular action of the lids in winking, which force the secretion into the tear sac (the drainage system of the eye) whence it escapes into the nose. One thing is certain: the tears are a bad culture medium for bacteria.

Another important factor in limiting the development of the bacteria in the eye is the temperature of the exposed eye-ball. McGillivray of Dundee has worked this out very carefully, and has shown that the surface temperature of the exposed cornea is about 18 degrees below that of the body temperature whereas if the lids are kept close the conjunctival and corneal surface temperature soon rises, thereby favouring the development of many bacteria. In addition to this, of course, the eyelids being closed does away with the mechanical drainage function, to which I have just referred. A good example of this is frequently met with in cases of phlyctenular disease in which the eyes have been kept bandaged. This closure is invariably followed by a marked extension of the disease which can be readily checked by desistence from the use of compresses, and also, what amounts to the same thing, by the prevention of the child burrowing its head into pillows and cushions.

Of course, when operating on the eye we have to bandage it afterwards, but this is with the sole intention of getting a speedy union of the wound, and by this means preventing the possibility of a deep infection of the eye. As soon as firm union has taken place all closure of the lids should be abandoned.

In my clinic at the hospital all cases of conjunctivitis, tear-sac trouble and ulcerative keratitis undergo a thorough bacteriological examination before treatment is undertaken. Invariably also a bacteriological examination of the secretion is made in all cases before operation.

The invaluable nature of this examination must, of course, be self-evident to you, as a means of diagnosis; as a precautionary measure; as an indication for treatment.

I may perhaps be allowed to describe the very simple process of making this examination, although doubtless the majority of you know it already.

This bacteriological examination short of making cultures of the germ is by no means difficult, and should not be beyond the power of any medical man. The little extra trouble that it entails upon the practitioner will be amply rewarded by the results obtained.

With a small platinum wire, sterilized in a spirit lamp's flame, a small amount of the secretion is removed from the conjunctival sac, and smeared over a glass slide. The great point in the smearing is to tease the secretion well out on the slide; a drop or two of gentian violet solution is dropped on the smear; after 25 seconds this is washed away with water; a few drops of Gram's iodine solution is dropped on, and left for about 15 seconds; it is washed off with alcohol until no more coloured matter is observed to come away; the specimen is then washed with water and a 5 per cent. solution of safranin is dropped on the specimen, and left for five seconds, when it is washed off with water. This is a routine method for the ocular secretions.

As you all know, conjunctivitis has been classified according to the nature of its secretion or conjunctival changes, catarrhal, muco-purulent, granular. and membranous types; but since bacteriological investigations have been carried out there is a strong likelihood that this will be changed. Similar clinical symptoms are caused by very different forms of bacteria, the treatment of which varies greatly according to the bacterial finding.

In the catarrhal type of conjunctivitis we recognize two main varieties, the acute and the chronic, the symptoms of which are too well known to you to need repetition. The vast majority of cases of the acute type has been found to be due to the presence of the Koch-Weeks bacillus, and in only a few cases have other germs been discovered. This form of bacillus as a rule attacks children and has even been found in the new born. As a rule these bacilli can only be discovered during the first few days of the disease.

The bacilli lie between the leucocytes and also within the protoplasm. Sometimes they even extend into chains of two or three links side by side; they are decolourized by Gram's iodine; they have an incubation period of two or three days; and the second eye is generally infected two or three days after the first; they seem to penetrate into the superficial layers of the epithelium and not into the

deeper tissues; they do not give rise to chronic conjuntivitis. The bacilli appear as very short fine rods staining less deeply than the nuclei of the cells. The ends are rounded and also show a deeper polar stain. I have a specimen under the microscope for your observation.

The treatment of this form of conjunctivitis consists in the application of nitrate of silver, 2 per cent. solution, or the 3 per cent. solution of largin.

Entirely distinct from this form is a chronic variety of catarrhal conjunctivitis affecting mainly the conjunctiva of the lids and especially well marked at the inner and outer canthi; this disease sometimes goes by the name of angular conjunctivitis; there is a slight mucous secretion, the conjunctival papillæ are not swollen, the inner canthus and the lid margins are markedly red; in time the roots of the cilia become affected, as does also the tarsus; the cilia then fall out and the lid margins curl inwards. It occurs at all ages but more especially in adults, and is most frequently met with during the months of June, July and August. Superficial infiltration of the cornea occurs and sometimes even severe purulent spreading ulcers are found which bear a marked similarity to the malignant ulcus serpens.

In 1896, Morax and Axenfeld both discovered a diplo-bacillus which by a series of exhaustive investigations they found to be the cause of this disease. The bacilli are large, 2 micromillimeters by 1, and generally occur in pairs and chains; they are decolourised by Gram's method after staining with gentian violet. The disease is very infectious and the bacilli retain their virulence for a long time.

It has been found that solutions of sulphate of zinc have almost a specific action in the cure of this disease, and this may be freely applied even when ulcerations of the cornea arise. The zinc salt is used in a solution varying in strength from a half to one per cent, up to 2 per cent., the milder collyria being reserved for those cases exhibiting the greatest irritation. It has also been found that the solutions of silver salts appear to be inert in the treatment of this condition. I might cite as an example of the action of this drug, even in severe ulcers, one case, several of which have lately come under my obsrvation. The patient had developed an ulcer in the cornea, probably of traumatic origin, for which he had been treated at his home in the country near Montreal. He thought that his eye had been scratched

very slightly with a twig, and did not pay much attention to it until it became very painful, when he sought advice from the family physician; and, treatment failing to check the condition, he came into my clinic at the General Hospital,

I found a large purulent ulcer of the serpiginous type. The condition was so typical that I immediately classed it as an ulcer due to pneumococcus infection and prescribed antiseptics and cauterization of the ulcer, thus you will notice departing from my rule of having a culture taken before starting treatment. The ulcer continued to spread rapidly, so that in 48 hours I felt there must be something lacking, either or both in diagnosis and treatment. Whereupon I had a culture taken; and, to my own surprise and that of the pathologist, Dr. McKee, he found the Morax-Axenfeld diplobacillus. The treatment was immediately changed and the solutions of zinc sulphate substituted for the antiseptic lotions. The change within 24 hours was marked and the progress thereafter towards recovery was very rapid. I have cited this case in full in order to impress both the importance of the bacterial examination of these ocular conditions, and also its value as indicating the proper treatment.

The metallic salts break up in the conjunctival sac, and act by precipitating the albuminates which agglutinate the enzymes and active agents of the inflammation, the freed acid of the salt thereupon exerting its caustic action.

It is interesting to note that this bacillus maintains its virulence in cultures up to the seventh generation. The diplo-bacillus enters the eye either from the air in a dried or fluid form, or by actual contact; it has been found in the posterior chambers of the nose, whither it may have come from the eye by means of the tear-duct. On the other hand there is a possibility of its spreading in the opposite direction from the nose to the eye; this diplo-bacillus retains its activity and power of reproduction after being dried for fourteen days, surrounded by a sheath of mucus, which prevents it from really being absolutely dried up. The presence of this germ and its attendant inflammation have been frequently reported in Europe, and its occurrence has been noted a few times in the United States; but as far as I am aware its first definite appearance in Canada has been noted in my clinic at the General Hospital by Dr. S. H. McKee. The disease is by no means a new one but the bacterial cause had not been traced until lately.

Under the microscope you will find several specimens, also a culture on blood-serum of Morax-Axenfeld bacillus. After 48 hours in incubator it forms little pits which later coalesce and liquefy.

We have another type of conjunctivitis frequently associated with infiltrations of the cornea, which take on a malignant type, and develop the above mentioned serpiginous ulcer; later on it may be complicated by iritis. The conjunctiva is at first slightly rose red; this is rapidly followed by great swelling and even by the formation of a croupous membrane on the inner surface of the lid; the secretion is watery; and very frequently there are small hæmorrhages; it is especially found amongst young children and young adults; it occurs in epidemics; it is contagious. The germ is found to be a diplobacillus lanceolatus, or pneumococcus, as it is sometimes called; they are lanceolate in shape and tend to form short chains, which with some other points suggest a similarity to the streptococcus family. The treatment of this condition is active antiseptics, and the application of the galvano-cautery to the ulcer.

Of the purulent types of conjunctivitis that exist, that caused by the gonococcus is the one most frequently met with and most disastrous in its results; it is extremely contagious, but the proportion of individuals suffering from gonorrhœa, who develop gonorrhœal conjunctivitis is comparatively small. The comparative freedom from ocular complications in gonorrhœa is very suggestive to any one having much to do with the disease. It would almost appear as if the gonorrhœa itself confers a certain degree of immunity. In addition the escape of the eye from this virulent infection must be partly due to the protection of the lids and the washing away of the secretion by the tears. It would appear as if the resisting power of the individual has a good deal to do with the severity of the disease, since in many cases which have come under my notice I have found that the proportion of gonococci present bears no definite relation to the severity of the disease. Many of the worst cases I have seen showed under the microscope but a few gonococci, whilst in others in which the disease ran what we might call a benign course, great quantities of gonococci were present. It is needless for me to speak about the characteristics of this well-known germ, but there is one point I wish to impress upon you and that is the fact that the gonococcus is capable of invading the intact corneal epithelium, whenever the pus is

allowed to stagnate in the eye; hence the great importance in treatment of a very complete and frequent irrigation of the conjunctival sac.

I have found gonococci in the sac many days after the cessation of the discharge, which points to the necessity of continuing the treatment for some time after the apparent cure.

In this connection I wish to draw your attention to an interesting form of conjunctivitis, of gonorrhœal origin, but in which the infection is endogenous, and is frequently associated with iritis. The inflammation as a rule occurs about the period of the appearance of the joint complication of gonorrhœa. As you know the gonococci are carried by the blood stream to the joints and there set up inflammation, and the same type of inflammation may occur in the eyes. It is an irritable form of conjunctivitis; the secretion is watery and has a tendency to chronicity and to relapses. No gonococci are found in the secretions of the eye although they may be present in the tissues; there is considerable pain and photophobia. The local treatment must be mild, and if there be any urethral trouble present, it, of course, must be attended to. The iritis that occurs in these cases possesses also the same tendency to relapses, but I have found that this tendency diminishes greatly with the improvement of the urethral condition. This form of gonorrhœal eye trouble may be considered a sort of general toxœmia manifesting itself in some weak spots. In cases of gonorrhœal conjunctivitis we sometimes get a mixed infection, streptococci and pneumococci being present, and it would appear as though the presence of the streptococci favours an increased severity of the infection.

Membranous conjunctivitis is happily a rare occurrence, at any rate the true diphtheritic type; in fact during my career in Montreal I have not come across a true case of this (although I have seen many cases of membranous conjunctivitis). A few I have seen on the continent of Europe. The severe cases of membranous conjunctivitis which I have met with were at first very suggestive of true diphtheria, but on close investigation they proved to be due either to that allied germ, the bacillus xerosis or to staphylococci.

As being of interest in this connection I might cite a case of my own which I saw not very long ago. The patient was an infant about nine months old, and suddenly developed an intense inflammation in the right eye; a gray membrane formed over the palpebral

conjunctiva which could be rubbed off, but left a gray surface beneath it; there was great swelling of the lids; a smear showed a bacillus which was at first considered to be the Klebs-Lœffler diphtheria bacillus. The culture, however, the next day showed this not to be the true Klebs-Lœffler, but like the allied bacillus xerosis (of which I will have a word to say to you later on). There were also staphylococci present. The treatment of this case was simple, the use of argyrol 20 per cent. strength, and mild boric acid lotions. Recovery took place in about three weeks. I will not detain you with any details in regard to diphtheria-bacillus; but I wish to say a few words in connection with that very puzzling type of germ, the xerosis-bacillus, which I found in the above case. This germ is found very frequently in the normal conjunctiva, so that it would appear there must be a predisposition on the part of the patient before it can exert any malign action. Little is known of its true nature and action; it is identical morphologically with the diptheria-bacillus. It is stained by ordinary aniline dyes, and grows on the same culture media forming similiar colonies. It is different from the diphtheria-bacillus in not producing an acid reaction in neutral peptone bouillon. Frankel regarded it as a non-virulent diphtheria bacillus which may become virulent when mixed with staphylococci; others regarded it as simply the non-virulent stage of the diphtheria-bacillus.

A year ago a case of that comparatively rare disease known as Parinaud's conjunctivitis was treated by me. The characteristics of the disease are the huge granulations which develop on the palpebral conjunctiva; these rapidly increase in size; there is also an enlargement of the pre-auricular, infra-maxillary and cervical glands. There is a rising temperature, but the course of the disease which is not rapid tends gradually to complete resolution. An elaborate bacteriological examination and report was made by Dr. John McCrae, pathologist at that time to the General Hospital. Pure cultures of a bacillus resembling the Klebs-Lœffler was found during 25 days of active treatment of the eye. This bacillus was not found in the other eye nor in the nose or throat. This bacillus gradually disappeared with the recovery of the eye. It would thus appear that, in this case, we were dealing with either a virulent form of bacillus xerosis or else a less toxic than ordinary bacillus diphtheriæ.

These are a few of the main points in conection with conjunctivitis which I thought might be of interest and value to you. There is no doubt in regard to all these germs that whenever they develop a tendency to form chains, that is, as it were, reverting to the streptococcus type, there is a coincident increase of virulence.

In addition to all that I have told you, it is hardly necessary that I should insist upon your not losing sight of one great point, the fact that the eye is part of the whole bodily mechanism, and that in the local treatment of any eye condition one must not lose sight of the general constitutional state. It is a truism that if the general physical condition is lowered there is a corresponding lowering of resistance to all forms of infection, and this holds true as much in the eye lesions as in general constitutional disturbances. A close attention is demanded to general hygiene, fresh air and cleanliness, both local and general, and proper dieting.

The second portion of my address I desire to devote to a consideration of the functional light perception of the eye and to the diagnostic value of it. This a symptom which is as a rule but scantily described in the text-books, yet it is nevertheless one of much importance in the differential diagnosis of certain eye diseases.

What is of much importance is that the said eye diseases are generally of constitutional origin, or secondary to serious trouble elsewhere. Many a time I have wondered if it were not possible to discover some symptom which would be of value as a hint of intra-ocular trouble, in cases, in which from some reason or other an ophthalmoscopic examination cannot be made. To examine the eye thoroughly with the ophthalmoscope demands continued practice, and very few general practitioners are able to do this, hence it is under these conditions that a symptom roughly pointing to fundus trouble of the eye may be of use. As an example of the value of this, I may mention one case out of many which have come under my observation. The patient was referred to me by the family practitioner in order to have the refraction tested; the symptoms calling for this being headache and diminution of the visual acutness. On proceeding to examine the patient I found that there was marked nephritic retinitis. This ocular condition is as you know associated with chronic varieties of nephritis in which the general symptoms are occasionally not very pronounced, hence failing an ophthalmoscopic examination of the eye

the mistake might be considered possible. It is just in such cases as this that an examination of the light perception, even roughly made, would serve as an indication to the physician of a retinal change being the cause of the eye symptoms, and would call his attention to the desirability of a thorough physical examination.

1. In examining the light sense there are two points which call for consideration, the first being the minimum amount of illumination which will give rise to the sensation of light; and secondly the smallest difference between two degrees of illumination which it is possible for the patient to perceive. The simplest method of testing the minimum light perception is to diminish the illumination of our card of test types, until it just begins to affect our own visual acuity (taking for granted that our own eye is normal). We can then observe whether there is a corresponding or greater diminution in the visual acuity of the patient. In order to test the light difference we use what is known as Bjerrum's or De-Wecker's photometric test types, which I here show you, which consist of Snellens types printed white on gray. The contrast between the letter and its back ground, as you will see, gradually diminish as we descend the board. There is a raction marked at the end of each line, which will give you an approximate idea of the value of the light difference in any case. The result, of course, cannot be mathematically accurate, but can be approximately enough correct for practical purposes. The main difficulty in these tests is the variation of perceptive power of the retina, occasioned by the state of so-called adaptation. For instance, an eye which has been in the dark for sometime is extremely more sensitive to light than one that has been exposed to strong daylight. We can, however, compare our own light perception with that of the patient, presupposing our own eyes are in an approximately normal condition. The diminution of the light perception is mainly caused by a pathological change in the outer or pigmentary layer of the retina, which layer goes by the name of photochemical apparatus of the eye. Whilst a diminished value of the light difference perception is most marked in lesions affecting the optic nerve, in retinal and choroidal lesions the light minimum is greatly reduced as a rule, and the light difference is but slightly affected, hence a diminution of the light perception pointing as it does to a lesion of the retina or subjacent choroid (which latter as you know is the nutritive supply for the outer

layers of the retina) directs the attention to the possible cause of such a lesion. Now the main causes of the retinal conditions are certain toxæmic constitutional states, and your attention being drawn to this fact you would institute a thorough general examination of the patient. The nephritic type of retinitis is the one most frequently met with, and as you know the prognosis is extremely grave, the patient's life rarely being prolonged 18 months after the eye lesions are demonstrated.

Next to this we have a diabetic type of retinitis in which we have the same failure of the light perception, but in which the prognosis is not nearly so grave; further, there are the syphilitic types, some of them associated with circumscribed exudations in the choroid and retina, which are characterized also by the distortion of objects looked at, due to the exudate forcing the cones of the retina apart, or by its contraction crowding them together. Another point in the diagnosis of these cases is that the perception of colours is changed, the appreciation of blue being first lost, and this is in marked contradistinction to the failure of vision due to true nerve lesions in which green is the first colour to disappear. I may mention here as an interesting contrast to these conditions that in cases of hysterical amblyopia you will frequently find the vision is improved under diminished illumination. As to the diminution of the power of appreciation between various degrees of illumination, this condition is most marked in cases of optic atrophy, and would be of value thus to you in the differential diagnosis between lesions purely affecting the retina and those of the optic nerve. I will not dilate here upon the visual field and its indications, but I think I have said enough to draw your attention to a simple differential diagnostic symptom which cannot but be of use to you.

2, We must not be in a hurry to consider all cases of headache and diminished vision as due to a refractive error.

3. In neurasthenic individuals there is a marked susceptibility to any peripheral irritation, so that a very slight error of refraction may give rise to marked symptoms, such as pain and headaches; while in the case of calm phlegmatic individuals a comparatively high error may cause little or no trouble. The same holds true, of course, in the well-known category of ocular muscular insufficiencies; for, given a slight error in any case there is a more determined and continuous

effort to overcome it, with the production of a corresponding fatigue, whilst in high degrees of the same trouble, there being an utter inability to overcome it, the patient makes no attempt to do so and accordingly escapes the trials of asthenopia. I feel obliged in this connection to speak rather strongly against the custom of allowing opticians to correct refractive errors. If there be any astigmatism present, which is likely in the majority of cases, the proper correction of it is virtually impossible without the use of mydriatics. Again, especially in cases of myopia of high degree, there are not infrequently marked retinal changes, which unless properly looked after tend to become worse and end in partial blindness. Many cases occur in which an apparent error of refraction is simply an indication of severe fundal and constitutional trouble, and one I may mention which having seen the other day is comparatively fresh in my memory and is of interest for two reasons. This lady had been wearing lenses prescribed for her by an optician, which had been changed from time to time during the past year, until latterly marked myopia began to develop. On examining her eyes, I found the light perception greatly diminished; there were some fine opacities in the lens; there were also some fine retinal changes which had evidently been in existence for some time. Further examination of the urine revealed the presence of marked diabetes. This case is also interesting as an example of the value of the light sense test.

In the words of Hilton Fagge, diabetes being a derangement of the chemical labour of nutrition, you can readily understand how the eye must suffer. The retinal affection in its earliest stages evidencing itself by the alteration of the light sense, and the myopia being as a rule due to the opacities of the lens altering its refractive power.

Astigmatism in its many forms is without doubt the cause of both local and systemic disturbances; bearing this in mind and recognising the fact that only accurate correction is of any value it must be self evident to you that no optician is competent to perform this work. In the words of Maitland Ramsey you have to remember that the eye is not only in the body but of the body.

HOW THE SCHOOLS CAN BE UTILIZED IN PROMOTING PUBLIC HEALTH.*

By G. E. DeWitt, M. D., Wolfville, N. S.

Mr. President, Ladies and Gentlemen :—

When asked by the Hon. Secretary of the Provincial Educational Association to read a paper on this subject, my first thought was, were I a Sanitary Engineer, I would recommend an innovation in the heating, lighting, ventilation and cleanliness of the school rooms of the present day. On second thought, I concluded that I would better confine my ideas to that part of the subject, in close touch with my profession, viz., the care of the children in the school, in regard to the prevention of communicable diseases, particularly the insidious and far reaching foe, known as tuberculosis.

The germ theory of communicable diseases has come to stay, and the knowledge of how to control, combat and eradicate them, should not be confined to the medical profession only, but be voiced in the land until the schools, the household, the press, and the platform, become familiar with the principles which govern the control of tuberculosis, as well as all preventable diseases, which ought to, and if not now, will be realized in the future, as of supreme importance to the well being and prosperity of the people.

THE BREEDING PLACES.

To successfully eradicate preventable diseases, we must eradicate the breeding places. Let the children be taught what the breeding places are. That all preventable diseases have a germ, and these germs their breeding places.

The medical profession has demonstrated to the world that the danger to the health of the body lies in uncleanliness, unclean air, unclean food, unclean environment. That the pathogenic or disease producing germs have an affinity for the "three D's—Dampness, Darkness, and Dirt." The profession of which I am an humble member has for a quarter of a century sounded the tocsin regarding

*Read before the Provincial Education Association at Truro, Aug. 24th, 1905.

the disease, tuberculosis, under the head of which is pulmonary consumption. The profession would naturally look to the other professions, and to men and women of culture, to assist in promulgating sanitary laws. Unfortunately, there has not been as much encouragement given to the medical profession in support of sanitary reform as could have been desired. The man whose prejudice and indifference, or whose ignorance, makes of him a defier of the natural laws which govern and preserve life, owing to his ignorance of the laws of life, usually resents any interference from boards of health or health officers. Co-operation on the part of the learned professions, lawyers, clergymen, engineers, teachers in schools, especially the latter, would strengthen and give force to the enactment of sanitary law. The profession which has for the past twenty years demonstrated to the world the germ theory of preventable diseases, their habitation, why they gain a lodgement in the system, and ultimately destroy it, also the reasonable way to prevent and destroy these disease-killing germs, must have the co-operation and assistance of an intelligent and sympathizing people. Legislators cannot or do not enact sanitary laws, until they are pushed by the people. It was my privilege to be present at the International Congress on Tuberculosis in St. Louis in October, 1904, when the National and Fraternal Society of Engineers, civil and sanitary, representing over five millions of people, sent their representatives to the Congress, who signified their intention and willingness to co-operate with the Congress on Tuberculosis in the promulgation of sanitary laws and in every possible way in their power to prevent the spread of the disease. It was stated in the last census made in the United States that 150,000 of the inhabitants die annually, or over 400 daily, of tuberculosis. It is not only the loss of life which the country sustains and which is so appalling, but where one life is taken with the disease there are a dozen or more who are sick and incapacitated, transmitting at least the predisposition, a weakened vitality. In this country and at this time I submit that it is opportune to inaugurate a special line of work in the public schools which will impart a knowledge of tuberculosis and other preventable diseases such as has not hitherto been done and such as the need of the hour demands.

While I try to reply to the important question, "How can the schools be utilized in promoting the public health?", I trust I shall not appear in too bold an attitude, or exceed the privilege accorded

to me in reading this paper, when I say that it is as imperative on the part of the Council of Public Instruction, to train the teachers in a knowledge of preventable diseases, as it is to train them in the science of mathematics, history or geography.

Lest I may seem vague and indefinite in my remarks, I would respectfully urge the Council of Public Instruction to obtain from any and all available sources, information relative to the means applicable to the prevention of communicable diseases, and have it formulated in the text books, making it compulsory for those who enter the teaching profession, before he or she can grade as a teacher, to become familiar with and pass as creditable an examination in this subject, as in any other. While I make the recommendation, I do not intimate that the teachers of our Public Schools are not hard worked enough already and perhaps do the greatest amount of valuable labour, for the least remuneration, of any public or paid official in the land.

As it is to day, *valuable time is being lost.* For the last two decades the laboratories of the world have been busy in settling scientific facts regarding the germ theory of disease. It is now opportune that the people seize hold of, and turn into practical use, settled scientific and clinical facts. My object in complying with the request to read a paper before this association on this subject is to ask for the co-operation and assistance of this influential, trained and cultured body of men and women, who come in daily contact with and teach the young life of this country, when the mind unfolds and develops, at a time when impressions are made, never to be eradicated or forgotten.

TRAIN THE TEACHERS.

In my reply to the committee of the Senate at Ottawa, a few days ago, on the subject, "Additional Suggestions in Checking the Spread of Tuberculosis," I suggested, "Train the Teachers," that they may be fitted to teach the essential principles which govern the control of tuberculosis and other preventable diseases. Teach that there is a seed and a soil,—the germ is the seed and the soil is the body. How we may best keep the seed and soil apart; how to treat the germ laden sputum; that the higher the vitality and tone of the system, the less susceptibility to the germ. A campaign of popular education must be carried on before the people are aroused to the extent they should be. There is at the present time in this Dominion, the Canadian

Association for the Prevention of Tuberculosis. There are in Toronto and Montreal municipal and anti-consumptive leagues, but all of these need the aid of the press, the pulpit and the platform, and, not least, the important auxiliary of teaching preventive measures in the schools. When, by these means, public opinion is aroused, provincial and municipal legislation will become easy.

Consumption is a house disease. It flourishes because of unsanitary dwellings, public halls, churches, school houses, factories, modes of travel, living and labour. The problem of the eradication of this disease depends not only upon the medical profession. It is a social problem, and lies at the root of our social fabric.

Tuberculosis is a disease of civilization. It is civilization which has caused the crowded and ill-ventilated workshop. Civilization has built us beautiful churches, where we are wont to go for spiritual comfort, oft-times at the sacrifice of the physical. It has driven the people into the slums, where pure air and sunlight, which latter are the disseminators of disease germs, are at a minimum. It has provided sleeping cars with heavy woolen and plush draperies, the carriers of infectious germs. It has covered our dwellings with carpets, which hold dust laden with the bacilli of consumption and other infectious diseases. It has converted our school houses from the plain, one-story structure, where the wind shook the windows and found its way into the school rooms, into a structure of three storeys of modern architecture, heated with furnaces and ventilated with what is called an up-to-date plan, but which alternately become hot and cold and the air impure, causing colds, affections of the throat, eyes and lungs, rendering the system susceptible to any infectious disease. We do not advocate going back to the old rickety school house, but we do recommend a more watchful and strict surveillance over the heating, cleanliness and ventilating of our school buildings.

The teachers of the public schools, than whom there is no class of public workers who are in a more favourable position to inculcate in the lives of the young, the first and primary principles which govern life, so as to preserve health and prevent communicable diseases, by educating them how and why they should be observed, who will supplement the efforts and strength of the medical profession as nothing else can. This universal teaching in the schools will ultimately convince the people that a

vigorous observance of sanitary laws is of vital importance to the preservation of life, by preventing preventable and infectious diseases.

The Eradication of Tuberculosis depends upon the education of the masses, rather than the treatment in Sanatoria, or climate, or fresh air, or of any vaunted specific in the pharmacopeia, of which latter there is none. We must look to the teachers in the public schools, as among those in the first rank of workers in this campaign.

During the Congress on Tuberculosis at the World's Fair, there were representatives from California and Colorado, who referred to the great influx of consumptives into these States and the great injury and injustice being done to those countries, by spreading the infection into their health resorts. These representatives appealed to the representatives of other countries to keep their consumptives at home and treat them there. They also stated that California was establishing a quarantine to prohibit consumptives from entering the state. Since then a distinguished Judge of the Supreme Court from Tahatti, suffering with the disease and who was on his way to Europe was not allowed to land at California. Since the discovery of the tubercle bacillus and the statement going forth that the germ is infectious, a wrong impression seems to have gone ahead, as to its character of invasion. The germ is not infectious in the same way as diptheria, scarlet fever, measles, typhoid, yellow fever and small-pox. When the people realize this and use the simple and proper means for the disposal of the secretions there will not be so much needless alarm.

The army enlisted to fight, "The White Plague" will find that the battle ground of the future will not be in hospitals, in sanatoria in distant climes, or other places of isolation, but in the homes of the people, where the disease is born and bred, until the germ becomes strong and vigorous, taking one, then another, and another, in many instances leaving the parents childless. A few days ago I visited a home, where there were six in the family, the father mother and four sons. The father and mother were well and strong and of strong parentage. The children were strong when I knew them nineteen years ago. The story from the mother was, first, the oldest got sick with consumption and died, then another and another, until all were stricken and died of the disease. The facts elicited were, that two lived in the same room until one was taken, then the other died in same room, and the remaining two when they became sick, lived and died in the same room. Was this carpet on the floor; these draperies

on the windows, and paper on the walls, I asked, when your children were ill and died of consumption? Yes. Was the room disinfected? No. This is an example of hundreds of homes in the Maritime Provinces, which are suffering from the ravages of the disease. Teach the children in the schools of the nature of the disease, how it can be prevented and they will believe it, and in the future will know how to care for homes of their own, so as to prevent this and other infectious diseases. The majority of those who have lived out three fourths of their lives, will not believe it, or regulate their lives as if they did. "'An author has said,' 'Teach a boy and teach an individual, teach a girl and you teach a household". Dr. William Osler in his address before the Phipps Institute in Philadelphia, this year said, "like all great truths, this must have its period of evolution before it can be practically utilized, and he added—"We have all been at school during the past quarter of a century and at school we must remain, if we are to make the knowledge we have attained effective".

The teachers in the schools should be furnished with better facilities than now obtains in Hygiene. The Councils of Public Instruction have furnished Health Readers, but they give no knowledge of the prevention of communicable diseases. There should be a stronger effort made to teach the ill effects of household uncleanliness, of bad sanitary location, of overcrowding, of insufficient light and ventilation. Teach that it is of fundamental importance that the sputum be carefully disposed of, not only in tuberculosis of the lungs, but in all diseases of the respiratory tract. In pneumonia, the micro organisms which cause the disease lie in the secretions of the respiratory tract. When they are not properly disposed of at the time of their discharge from the body, they become more or less widely scattered, dried, pulverized and suspended in the air as dust. We should inculcate the idea, that the germs of both pneumonia and tuberculosis are carried by infected sputum, that it is as necessary to care for the disposal of the secretions of one as the other. We should also inculcate that spitting carelessly anywhere is filthy and indecent and in many cases criminal. Teach that all preventable diseases have a germ, that these germs have breeding places, that the germ is the seed, the soil is the body. That the physically weak from any cause is the soil prepared for the germ. Teach how to keep the seed and soil apart, how to avoid colds, how and why we take cold. The value of fresh air, day and night.

Teach the difference between contagion and infection, that tuberculosis is not in the true sense contagious, but, infectious. Teach that heavy woollen carpets and draperies are an abomination and hide the death dealing germs. That consumption is a house disease, that house infection is the main source from which the disease emanates. Teach that cleanliness of person and of environment is as true now, as when that great and good man of common sense, John Wesley uttered the words "cleanliness is next to godliness."

Do not, as is the custom in some schools, allow the children to clean the blackboards. The boards should be cleaned with a moist sponge or cloth, and when used either destroy it or put it into a sterilizing or antiseptic solution. If a sponge or rubber were analyzed after being used on the blackboard a curious and revolting story would be revealed. Teach the value of exercise, of living in the open air, of cold bathing. Teach the relative value of foods, necessary to the maintenance and stamina of the economy. That the system needs a certain amount of fat, or the carbohydrates of the albuminoids. That a supply of fat to the blood is essential to the protection of the tissues and is also of importance for general use as a source of heat and mechanical force; that it furnishes the potential force necessary for the conversion of other food material into organic tissue and to maintain the bodily functions. Teach that the tubercle bacilli are abroad everywhere, a constant menace to our powers of resistance. Teach that where two are subject to the same conditions and one takes an infectious disease and the other is exempt, it is because of his powers of resistance. Everybody has learned, when it is unfortunately too late, that codliver oil is good for consumptives, but few seem to have learned that food of the same character as codliver oil, suitable for the table, is preventative of consumption.

Without going more into detail, I recommend for the perusal and serious consideration of the Council of Public Instruction the report of the Provincial Health Officer, Dr. A. P. Reid, for the past year. This efficient officer, with his usual skill and acumen, has delineated and made plain, by a careful compilation, why certain reforms should be observed and enforced in the schools to preserve the health of the children and prevent communicable diseases. His remarks regarding the relative use of the dry and wet bulb (the thermometer and hygrometer) if taught in schools, will permeate our homes, and, when lived up to, will make less demands upon the physician's services and the householder's purse.

ATHLETICS DURING THE SCHOOL HOURS.

The morning hours, after the physical and mental system has been at rest, while asleep, is the best time for study. Could it not be arranged so as to give the children athletic exercises during the afternoon hours. When their exercises flag from having inhaled an excess of impure air, in perhaps an overcrowded room, away from these crowded rooms in the open air, when the pure air would come in contact with the air cells of the lungs, imparting to the circulation the pure oxygen of which it has been deprived. Such exercises would make the vigorous more vigorous, the weak stronger, fitting them for the labour of the next day with a zest and avidity they would not otherwise have. Knowledge given or acquired at the expense or sacrifice of the health of the child is a failure and a farce. I would recommend that a periodical medical inspection be made in the schools; that with this medical supervision, with the assistance of the teacher, the weaker ones who are bending under the strain, owing to a delicacy of constitution, may be saved from further wreck, that with the aid of the physician and the co-operation of teacher and parent, the child's studies might be arranged to meet his constitutional conditions. There are many children whose parents, on account of their delicacy of constitution, send them to private schools rather than submit them to the strain, or systematized work in the public schools.

H. Clay Trumbull in his treatise work "Teaching and Teachers," refers to Solomon, when he gives the injunction "Train up a child in the way *he* should go." Train up (or from the start teach a child) any child and every child, in the way *he* should go. Not necessarily in the way of other children. Not in one and the same way for all children, but in his particular way, the way in which *he* out of all the mass of humanity ought to go, whether any child ever went that way before, or whether any child will go that way again, and (then) when he is old, he will not depart from it. "That is Solomon's idea." Although that is not the idea which popular error has twisted from that inspired junction, "Trumbull also refers to a wise Connecticut Teacher, who illustrates the careful study of each individual, after this fashion. Suppose that you were a worker in metals, and had a foundry and a forge, in which you cast all manner of curious things, at which you wrought all manner of cunning devices. Suppose a

stranger should come to you, bringing sealed packages, and should say, here are various kinds of metals. Without unsealing, put them at once into your furnace, run them into your mould, work them at your forge, treat them all alike, and produce for me a set of images, each the exact counterpart of the other, would you not reply, the thing is impossible. Let me know what I am working on. Brass will not melt as readily as lead, iron is not as malleable as copper. Steel is not as ductile as gold. One process for one, another for another, is the rule of my trade. But he urges, metal is metal, heat is heat, a forge is a forge, a mould is a mould, is not that enough? You answer is that metals differ. The heat that melts one would sublime another. The mould that is strong enough for one is too weak for another. The blow that would crush one would rebound from the other. And Trumbull adds —"This wise teachers enforcement of this illustration is worthy of the attention of every teacher."

Ladies and gentlemen,—Is not the illustration of the metals as well as the analysis of Solomon's words, "train up, or teach a child in the way he should go" applicable to the training of the physically strong and weak in the schools. Not necessarily the same vigorous methodized training for the neurotic, chlorotic, or anæmic boy or girl, whose system only needs the lash of competition and urging from the teacher, to make of it, the rich productive soil for the lodgement and growth of disease germs. But rather treat him or her in his or her particular way as the metallurgist treats his metals, which is in accord with their nature and character, their physical make up. That the blow that will rebound from the one will not be made to crush the other.

Ladies and Gentlemen,—You can be the coworkers, nay, more, the pioneers, the crusaders, in your particular sphere, in preserving the health of your pupils, by exercising the caution due to the training adapted to the physical and mental development of each child. "The health of a child is its greatest heritage." The health of a people is the nation's wealth, and with the fear of God the support and foundation of its social fabric.

THE TREATMENT OF CYSTITIS.*

By H. A. KELLY, M. D., Professor of Gynæcology, Johns Hopkins University, Balt., Md.

Miscere utile cum dulci, to impart useful information in an entertaining manner in general addresses of the character I am asked to deliver, seems to be a custom as old as, and closely akin to, the use of excipients to carry a drug which is not pleasing if taken in its naked strength. Who does not recall with pleasure the "elegant mixtures," the electuaries and the compound syrups of our forefathers?

I have tried to meet your expectations to-day, by bringing before this large audience, representative of the most advanced medical thoughts of our day, one of the oldest and most rebellious of the enemies of our race, namely cystitis, bound in chains, and I trust you will find no small satisfaction as you thus note that one more step has been taken in the path of therapeutic progress.

The resumé I shall thus give you embraces over eighteen years of a personal experience largely devoted to this particular subject.

In order not to raise too great expectations, let me declare at the out set that, as is often the case in that difficult art which we profess, I have no single drug or method to propose by which all cases can be cured. It is only by a painstaking study of all the conditions, and persistent patient efforts, that cystitis can be understood and successfully combatted. The therapeutic side of the subject, in which your interest naturally focuses, is so large that I cannot do more than touch upon history, etiology, pathology, clinical history and diagnosis

HISTORY.—Two great names of our fellow countrymen stand preeminent in the history of the treatment of cystitis, and to them alone will I refer in this brief resumé, as they are in danger of being lost sight of in the hurry which characterizes the progress of to-day. One of these is Willard Parker, of New York. who in 1850, at the Bellevue Hospital, operated upon a case of chronic cystitis in the male, stating that, "The object in view was to open a channel by which the urine could drain off as fast as secreted, and thus afford rest to the bladder, the first essential indication in the treatment of inflammation." This was reported in the *New York Medical Journal* for July 1851.

*Address in Gynæcology delivered before Canadian Medical Association, Halifax, August 23rd, 1905.

The other is T. A. Emmet, who in 1858 operated for a vesical calculus and by the advice of Marion Sims, left an opening in the vesico-vaginal septum for the greater facility afforded in the treatment in the effort to restore the organ to a healthy state. Subsequently to this, Emmet "made an artificial vesico-vaginal fistula, with a view of giving rest to the organ by the pre-escape of urine." (*American Practitioner*, for February 1872.) Emmet records several cases of cystitis treated by this plan in his classical work on vesico-vaginal fistula published in 1868, while Parker also presented at the New York State Medical Society, in 1867, a paper on "Cystitis and Rupture of the Bladder treated by Cystotomy."

One of Emmet's most rebellious cases, a woman who had suffered for three years, after cystotomy and irrigation of the bladder, was examined "Endoscopically" by Dr. Newman, June 1st, 1869, and the bladder found free from disease, whereupon Emmet closed the fistula, and with some further slight treatments she fully recovered.

I mention these facts, as I am sure we are too prone to forget the skilful labors of our predecessors upon which all that we are successful in doing to-day rests as a sure foundation. All honor to these noble painstaking pioneers in this most difficult corner of our field of labor,

Etiology.—Again I turn with no little pleasure to Emmet, who, writing in 1872, says; "Neglect during labor to keep the bladder empty, exposure to cold, violence, and the habit of long retaining the urine, are the chief exciting causes of the most serious forms of cystitis." In investigating this, as in other inflammatory affections, we have to consider two factors—the predisposing causes which prepare the ground for the cystitis, to which we have but little to add to what Emmet has said, and the exciting cause, the particular living organism which is the immediate agent in setting up and in maintaining the disease. It is this last important factor which has given us a new conception of the subject, and served to modify and direct our treatments.

Contrary to the opinions of some ten years ago, we now know that the mere presence of organisms is not sufficient of itself to excite a cystitis. This is seen in cases of bacteriuria, where, although the urine is loaded with organisms, there is but a nominal lesion, or no lesion at all in the bladder.

The following predisposing factors are important:

1. Localized congestion.
2. Traumatism.
3. Retention of urine.
4. Reduced health.
5. Two or more of these factors combined.

The congestion may result from "catching cold" and exposure, or from the action of toxins or chemical irritants on the bladder, excreted by the kidneys, or from a hyperacidity of the urine, or again from the presence of tumors in the pelvis.

Traumatisms arise from labor, especially where the forceps are used with the bladder not emptied, from the use of the catheter, and most important, from surgical operations on the uterus involving the detachment of the bladder, and from stones lodged in the bladder.

Retention of the urine from faulty innervation of the bladder as in tabes or after labor, retention from a sense of modesty associated with the use of the catheter is a prolific cause.

Ill health renders the whole body liable to the invasion of organisms, and, coupled with any of the preceding factors, renders the bladder a *locus minimæ resistentiæ*.

What are the organisms then which serve in the presence of such conditions, to bring about and maintain a cystitis?

I turn to answer this question to an admirable summary of my own cases made by Dr. T. R. Brown, and published in the Johns Hopkins Hospital Reports, vol. X, No.'s 1 and 2 for 1902.

There were 25 cases of accute cystitis which revealed the presence of:

B. coli communis	15 times.
Staph. pyogenes albus	5 times.
Staph. pyogenes aureus	2 times.
B. pyocyaneus	1 time.
B. typhosus	1 time.
Proteus vulg.	1 time.

and in 22 cases of chronic cystitis Dr. Brown found:—

B. coli communis.	11 times.
Staphyloc. pyogenes aureus	3 times.
Staphloc. pyogenes albus	2 times.
B. coli communis (with tub. bac.)	1 time.
Unidentified (possibly a variety of the B. coli)	1 time.
Pyuria sterile	2 times.
A staphyloc albus (wh. decomposed urea. was pyogenic, but either did not liquefy gelatine or did so extremely slowly)	2 times.

There were also six cases of tuberculous cystitis.

Contrast these findings with those of Melchoir and you will find the similarity is in some respects a striking one.

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Melchior examined 36 cases of cystitis (17 women) and found

B. coli communis	25	17 pure cultures
Streptococcus pyogenes	5	3
Proteus Hauser	4	1
B. Tuberculosis	3	2
Diplococ. urea. liquef.	3	2
Staphyloc urea. liquef. Lundström	3	1
Stretpobac anthracoides	3	3
Gonococcus Neisser		1
Typhus B.		1

The great importance to be attached to this study of the etiology of cystitis is the discovery of several factors easily within our control, notably the traumata. By recognizing this fact we can often do much to prevent a cystitis in many instances.

The most important group opened up by a bacteriological study of the urine, is the tubercular cases, which, as a rule, call for more aggressive plans of treatment.

I will pass over the pathology, simply noting two important facts which bear powerfully on the treatment of cystitis:

First. that the disease is sometimes purely superficial, being only in the mucosa, while at other times it extends deep down even into muscularis;

Second, the disease is often localized to a few well defined patches; it is rarely universal.

The following clinical forms may be recognized, apart from the infecting organism or organisms:

1. Catarrhal, involving the superficial mucosa;
2. Desquamative;
3. Ulcerative;
4. Granular;
5. Papillary;
6. Bullous edema.

The divisions into acute and chronic, separate the cases according to duration and intensity of symptoms.

Diagnosis.—A diagnosis of cystitis may be made when pus is found

in the urine in association with an inflamed area in the bladder; this latter may be inferred by symptoms such as pain and frequent urination, or by a direct visual examination of the interior of the bladder.

I must bear in mind that my remarks may fall into the hands of some very busy practitioners who may find it hard to get time to use the microscope. I would therefore utter the caution not to mistake a pollakuria (frequent urination) for a cystitis. In my experience this has often been done, and then the active measures of treatment instituted have converted the innocent and annoying disease into a dangerous one.

Again a caution: you are likely to mistake a dysuria from hyperacidity of the urine for a true cystitis, unless you supply some other test than the subjective symptoms.

Yet another caution: a little affection in the vesical trigonum by the intensity of the symptoms it provokes may hide a much graver and more advanced latent affection in one of the kidneys.

The diagnosis, to be sure and satisfactory, should ascertain not only the fact that there is a cystitis, but its extent as well.

A diagnosis which begins and ends with the word "cystitis" is as accurate as the statement that the patient has thoracic disease.

Again, even though we determine the nature of the infecting organism, the diagnosis is still no more accurate than it would be to say that the patient has pulmonary tuberculosis. You see here readily enough how vital are the questions, where is the disease located, and how extensive is it? Apply like questions to the bladder.

Let the man who is willing to go carefully into his cases rest his diagnoses on this tripos:

1. History, including symptomatology.
2. Examinations of the urine, microscopic and bacteriologic.
3. A direct inspection of the interior of the bladder.

I cannot urge with sufficient earnestness the ease with which the examination is made through the open cystoscopes without any intervening medium of lenses or water, nor can I sufficiently declare the importance of the results thus obtained in clearing up and giving precision to the diagnosis.

With such examinations cases of bacteriuria become much rarer, as some lesion of the vesical mucosa is almost always found, even

though there is a remarkable disproportion between the local diseases and the numbers of the bacteria.

TREATMENT.—I am glad to address you on the subject of the treatment of cystitis, as I have now had an experience of over five hundred cases, which have been carefully collated from my records by Dr. D. G. J. Campbell, of this city.

I think we have gone as far as we can under existing conditions, and must await some fresh and important discovery to change our present methods materially, and when the specialist feels that he has pretty well thrashed a subject out, it is time to hand his work over to the general practitioner to see how much he is ready and able to appropriate.

Three important factors enter into the successful treatment of cystitis:

1. A full carefully written analysis of the case, including a description of the lesions seen in the bladder;

2. A well defined campaign against the disease, progressive in character;

3. Great patience; never give up.

All preliminary discussions as to history, etiology and pathology lead up to the two great practical issues: how to prevent the disease and how to get rid of it.

I. PROPHYLAXIS.—I am convinced that if we pay closer attention to prophylaxis there will be a prompt and a large percentage reduction in the cases of cystitis. Most of the cases seen now-a-days, follow some pelvic surgical operation.

A potent factor in the prophylaxis is the proper use of the catheter, which I may summarize as follows:

A sterilized catheter; cleansing of the external urethral orifice before introduction;

the gentle introduction of the catheter without touching the end introduced. The bladder must not be permitted to become overdistended, It is also important to remember that the patient unaccustomed to void urine lying on her back often empties the bladder very imperfectly. If the urine tends to stagnate in the bladder some warm boric acid solution should be thrown in to wash it out every time the catheter is used.

In our abdominal hysterectomies, the bladder should be rubbed, pinched and bruised as little as possible. I have looked into the

bladder after a hysterectomy for myomata and seen large transverse striæ of submucous hæmorrhages on the posterior wall.

In another similar case in which I re-opened the abdominal wound, the bruised bladder was at first mistaken for a large fresh blood clot.

Further, where there is reason to fear cystitis, and always when the catheter is used, it is well to use urotropin for a few days, in 5 or 10 gr. doses t. i. d., as a prophylactic. The consensus is that cystitis will but rarely occur if this precaution is taken.

II. REMOVE THE CAUSE.—The sister of one of our ablest practitioners got up from her lying-in-bed with a bad cystitis which faithful treatments failed to ameliorate in the least degree.

She entered my cystoscopic room for the first time; I put her in the knee-chest posture and looked into the bladder, and lo, there was a white calculus as big as a pigeon's egg lying in the vertex. With the removal of the calculus she made a prompt recovery.

Take nothing for granted; If you can look at a sore throat, you can also with a reflected light and a little patience, necessary to acquire a little more dexterity, look into an inflamed bladder.

Make also a searching bimanual examination of every contiguous pelvic organ. If there is a myoma or an ovarian tumor or a pelvic inflammatory mass pressing on the bladder and interfering with its proper evacuation, take the tumor or mass out.

Another patient with a bad pyuria whose kidney was to be taken out, I found had a small suppurating dermoid cyst opening into the bladder by a sinus; the removal of the tumor and the closure of the orifice cured the disease, and saved her from a serious mutilation.

In any obstinate case, especially if it is one of lesser degree, always remember that the source of constant reinfection may reside up in the pelvis of the kidney. If you fine tubercle bacilli associated with a cystitis you may be sure that in 19 cases out of 20 the primary focus is in the kidney.

As we consider the active treatment of a cystitis, let me urge two important factors which serve as controls in testing progress towards recovery:

1. A careful preliminary examination and description of the local condition, as seen through the speculum, on the interior of the hollow sphere. If there is any marked improvement, examinations from time to time will show it by the variations in color, and in the extent of the lesions.

2. The taking of a measured quantity of fresh urine, say three platinum loops, and spreading this on the slant agar, and then counting the colonies which grow out, as a means of testing the reduction of the amount of infection. These individual foci will often be found to diminish progressively from countless to discrete, to perhaps one hundred, to fifteen or twenty, to two or three, to finally none at all. Several sterile cultures ought to be secured before the case is considered free of any risk of a relapse.

Let us now consider our resources in dealing with a particular case. They are: systematic treatment, medicines by the mouth, injections into bladder, direct topical treatments of the vesical walls, surgical treatment, including incision of the bladder, and excision of the disease.

Rest in bed is of the utmost importance. For this reason I can always do far better for a case if I can get her into my hospital, with rest associated with regulated diet, tonics, the due regulation of the bowels, and massage and baths.

MEDICATION BY THE MOUTH.—Large quantities of bland water is a valuable remedy here as in renal pyelitis. The virtue, I think, in the various lauded waters resides in the pure *aqua potabilis* which they contain, and not in the various salts shown in the analyses. Some patients will take, however, with better grace, three or four pints daily of a water which is imported in a big bottle with a sounding name, than the simple but equally efficacious spring water from a home source. It is the old tale of the bread pill and the placebo.

Urotropin in five to ten grain doses is of value in the more recent cases, especially where there is a tendency to ammoniacal changes, (Nicolaier).

The nitrate of potash is valuable where the urine is too acid, while benzoic acid is of use to make the urine acid.

There is some advantage in reversing the chemical reaction of the urine under which the organisms are flourishing, though not so great as one would have anticipated.

Cantharidin has been used by Freadenberg with the greatest benefit, in a series of fifty-six cases, curing thirty-two rapidly. The ℞ is Canth. (Merck) 0,001 in 1.0 alcohol dissolved in 100 water. Take three or four times a day in teaspoonful doses.

I use also fluid extract of corn silk (Zea mais) in teaspoonful doses, with advantage in the amelioration of the symptoms.

Irrigations form perhaps the most important means of treatment at our command, and with irrigation it is well to combine *distention* of the bladder.

The simple daily cleansing of the bladder in this way is of the utmost value and many cases would recover rapidly if only bland fluids were used.

The two most efficient drugs here are the nitrate of silver 1-I500 to 1-500 or stronger, and mercuric sublimate 1-10000.

As good a plan of administration as any is to connect a rubber tube with a funnel attachment to the catheter, and then slowly elevate the funnel two or three feet above the level of the pelvis. By the amount born and the height, one can pretty well estimate the progress of the more difficult cases towards recovery. The great quality of importance here, for both patient and practitioner, is patience. It sometimes takes weeks or months to secure the first decided step in advance, with many apparent backsets in the interim.

I must confess to you right here that in several of my cases which we have worked over for one or two or even more years, securing a recovery in the end, I would never have had the courage to persevere were it not for the unflagging interest and zeal of Miss Cook, my chief nurse, who has personally conducted almost all of the treatments.

Direct Topical Treatments.—When a cystitis is in the chronic stage and is furthermore localized in a small area of the bladder, one for example which could be covered by the last joint of the thumb, direct topical treatments often hasten the improvement and even effect a cure. The bladder is emptied and the patient put in the knee chest posture, then through an open cystoscope, using a headmirror or other suitable illuminant, the patch of inflammation is exposed and treated just as a chronic sore throat is handled, making a direct strong application by means of an applicator and a pledget of cotton. Nitrate of silver is best here, used over a small area as strong as 50 p.c., for larger areas 10 or 5 p. c. taking care that there is no excess of the solution to run down over the sound mucosa. I also use freely a 50 p. c. sol. of argyrol. Subsequent treatments must be milder and at intervals of from 3 to 7 days. A one and a two p. c. solution is often valuable in trigonal inflammations (trigonitis).

An admirable effective combination is formed by associating occassional topical treatments with daily irrigations and distensions.

(To be Continued.)

Retrospect Department.

SURGERY.

MURRAY MACLAREN, M. D., M. R. C. S., St. John.
JOHN STEWART, M. B., Halifax.

THE FINAL RESULTS IN THE X-RAY TREATMENT OF CANCER, INCLUDING SARCOMA.

Dr. Wm. B. Coley contributes an article on this subject in the *Annals of Surgery*, August, 1905.

He concludes that the results of the X-ray treatment of malignant tumours up to the present time have proven:

1. That the X-ray exerts a powerful influence upon cancer cells of all varieties, but most marked in cases of cutaneous cancer;

2. In some cases, chiefly in superficial epithelioma, the entire tumour may disappear, probably by reason of fatty degeneration of the tumor cells with subsequent absorption;

3. In a much smaller number of cases of deep seated tumors, chiefly cancer of the breast and glandular sarcoma, tumors have disappeared under prolonged X-ray treatment. In nearly every one of these cases, however, that has been carefully traced to final result there has been a local or general return of the disease within a few months to two years;

4. In view of this practically constant tendency to early recurrence, furthermore, in the absence of any reported cases well beyond three years, the method should never be used except in inoperable cases, or as a prophylactic after operation, as a possible, though not yet proven, means of avoiding recurrence;

5. The use of the X-ray as a pre-operative measure in other than cutaneous cancer is contra-indicated: 1st, because the agent has not yet been proven to be curative; 2nd, because of serious risks of an extension of the disease to inaccessible glands or to other regions by metastasis during the period required for a trial of the X-ray.

These conclusions have been reached after a study of cases extending over the past three years. During this period he had under observation the X-ray treatment of one hundred and sixty-seven cases of malignant tumors, both carcinoma and sarcoma.

SCOPOLAMINE-MORPHINE ANÆSTHESIA.

The same number of the *Annals of Surgery* contains two articles on scopolamine-morphine anæsthesia.

Dr. Seelig writes of it as an adjuvant in the administration of general anæsthesia and presents a series of sixty-five administrations, and Dr. Emil Ries reports its use as a general anæsthetic in seventy-two cases.

Scopolamine is an alkaloid of *hyoscyamus niger* and is akin to hyoscine, hyoscyamine, atropine and daturine. It is most closely related to hyoscine. In 1900, Schneiderlin published the first paper advocating the use of scopolamine as a substitute for general anæsthesia sufficiently profound to permit the performance of any operation.

Seelig, in his cases, gave a hypodermic injection of scopolamine hydrobromate $\frac{1}{100}$ grain, and morphine $\frac{1}{6}$ grain, one-half hour before the administration of the general anæsthetic (ethyl chloride first and then ether). The results were considered highly satisfactory. The advantages are stated to be: almost one-half of the ether usually required, is used; vomiting is lessened—it did not occur at all in seventy-seven per cent. of the cases—and nausea is infrequent; the patients are in a peaceful state of mind and go under the influence of the general anæsthetic without excitement; salivation is nearly always absent: there is less pain and discomfort and restlessness after operation.

Ries has used scopalomine-morphine as the general anæsthetic in his cases, and not as an adjuvant as in Seelig's cases, sometimes, however, giving a small amount of chloroform when necessary to complete the anæsthesia. The injections are given in three doses, two and a half, one and a half, and one hour before the operation. One-tenth milligramme scopolamine and twenty-five milligrammes of morphine are divided into the three doses. The patient sleeps for about five hours after the last injection.

There appears to be some doubt of the safety of the drug when given in this manner, while when given as as adjuvant to ether in a smaller dose, it is thought to be safe.

The whole question is now upon trial, and the advantages or otherwise can only be determined after prolonged experience. This can readily be appreciated when one realizes that the relative advantages of chloroform and ether are still debated.

In the meantime, one feels inclined to stand aside and allow some one else to *make the investigations.*

THE

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Editorial.

THE DEFECTIVE AND DELINQUENT CLASSES.

The interest aroused in the cause of defective and delinquent children by the recent visit of Mr. Kelso, of Toronto, to various Nova Scotia towns, should be felt in special measure by members of the medical profession. It is the duty of every physician to identify himself with any measure intended to better the conditions under which any class of the people live. There is no public measure which should fail to receive the support it merits from the members of our guild. But we should be especially in sympathy with a proposition which has such distinctly medical and hygienic bearings as the treatment of defective and delinquent classes.

There could be no greater folly than to suppose that charities which particularly concern themselves with the control or the education of the moral faculty should be left to the supervision of religious organizations. The problems of vice resolve themselves largely into problems of degeneracy, and these again into problems of environment—and in environment nothing has greater influence in the production of crime than insanitary conditions. One of the greatest reforms made by religious organizations of late years has been the recognition of the fact that sound health is the best foundation for good morals. The practical evidence of this recognition is everywhere to be found in the gymnasia and allied armamentaria associated with various religious corporations. Apparently medical men are not as keenly appreciative of the part played by good health in the moral

uplifting of the race as are practical-minded men in other professions, and we consequently lose one of the greatest opportunities we have for contributing a generous quotum to the development of national character.

When it is remembered that the intimate association between degeneracy and mental defect on the one hand, and between degeneracy and crime on the other hand, has been in the main expounded by physicians, it is almost humiliating to see the initiative in the movement to provide reasonable care for our defective and delinquent classes taken by laymen. There is left for us, though, the privilege of rendering cordial co-operation, and this we should not fail to do.

One matter to which Mr. Kelso drew attention is the inadvisability of herding children together in large reformatories. The mania in recent years for building large institutions has unfortunately introduced a most artificial element into the life of many of the unfortunate classes. This has now come to be generally recognized, and the beginning of an effort at better things is to be seen in the call for the "cottage system" in many public institutions. It is a safe prophecy that within a few years a still greater departure from the congregate system will be demanded, and, while for many the institution will still be a necessity, for many others a close approach to home life can be attained. What has been done for the insane in Belgium, in Scotland, in Massachusetts, and elsewhere, is capable of very general application. The instance is cited because there is admittedly no type of defective more difficult to provide for than the lunatic. And yet twenty-five per cent, of the insane of Scotland are happily housed in the homes of farmers, artizans, and others. When this is possible, there is surely some means of escape from the cruel huddling together of large numbers of children whose defect is of a type often very easily dealt with., and who are at an age in which the evil influence of unfortunate associations is especially apt to make deep impress. It is satisfactory to know that Mr. Kelso has succeeded in very largely replacing reformatory treatment by the beneficent influence of good homes in the care of the delinquent children of Ontario, and we trust that he has proven our Province to be sufficiently well provided with *institutional* facilities for the care of delinquent children.

While urging sympathetic interest in such work as that which Mr. Kelso has been advocating, and which will be instituted by the

Children's Aid Society, just organized in Halifax, we would also urge the possibilities which present themselves to the physician in the way of prophylaxis of crime. The causes which make for degeneracy are those which make also for criminality. This is indisputable. And there could be no mightier factor in the uplifting of the race than that which the physician has largely under his control—the universal establishment of good hygienic conditions, instruction in the avoidance of harmful habits and harmful influences, and education in all the laws of health.

Society Meetings.

HALIFAX AND NOVA SCOTIA BRANCH BRITISH MEDICAL ASSOCIATION.

November 8th.—Meeting held at the City Council Chamber, the President, W. H. Hattie, occupying the chair.

After adoption of the minutes, the President submitted a letter from the Montreal Antituberculosis League, regarding a public lecture at Halifax by Dr. Richer. It was decided that Dr. Richer be invited to lecture at Halifax.

Dr. Hattie read the Presidential Address, taking as his subject. "The Doctor's Mission." (To be published later in the MARITIME MEDICAL NEWS.)

A vote of thanks to the President was proposed by Dr. Stewart and seconded by Dr. Trenaman, the Vice President, Dr. Ross, presenting it.

Dr. Goodwin called attention to the position taken by two American lay journals, *Collier's Weekly* and *The Ladies' Home Journal*, with respect to the patent medicine trade. He moved that a committee of three be appointed to send these journals a note of appreciation on behalf of the Branch. The motion was seconded by Dr. Kirkpatrick, and after considerable discussion it passed, the President naming the following gentlemen as the committee:—Drs. Goodwin (chairman), Kirkpatrick, and C. Dickie Murray.

Dr. W. D. Finn read, "Notes on Nitroglycerin," first taking up the conditions in which the exhibition of the drug is indicated, and then mentioning many interesting points concerning methods of its administration. He thought it always best given in liquid form,

beginning with $\frac{1}{100}$ gr. and increasing the dose as the individual case demands. In certain cases, *e. g.*, fibroid disease of the heart, as small doses as $\frac{1}{200}$ gr., repeated every fifteen minutes, were advised.

The President complimented Dr. Finn on his succinct review, and asked for discussion, which was taken part in by Drs. Ross, Goodwin, C. D. Murray, Kirkpatrick, and other members; Dr. Finn, in conclusion, thanking the Branch for the reception and discussion of his paper.

November 22nd.—Dr. Hattie exhibited a case of spasmodic tic of nine years' standing, which showed the condition known as coprolalia, and which had lately improved considerably under iodide treatment.

Dr. Goodwin presented a report from the special committee appointed to draft a letter of appreciation to *Collier's Weekly* and *The Ladies' Home Journal*. The report was adopted, on motion of Dr. Goodwin, seconded by Dr. Mader, a copy of the letter to be forwarded to the above-named journals.

It was moved by Dr. G. M. Campbell, and seconded by Dr. Trenaman, that a copy of the programme of the Branch for 1905-6 be sent to each member. Carried.

Dr. Mader then gave a paper, "Observations on Surgical Technique," based, as he said, upon a recent visit to some of the medical centres of the United States, chiefly New York and Boston. He noted many interesting points in surgical treatment, which he had observed at the various hospitals. Dr. Murphy and others discussed his remarks at some length, after which Dr. Mader replied.

Dr. Doyle read, "Notes on Hypnotics," classing hypnotics in five groups: (1.) Opium and its alkaloids. (2.) The chloral group. (3.) The sulphonal group. (4.) The hyoscyamus group. (5.) Miscellaneous hypnotics. He discussed in detail many of the individual drugs of the above groups, and spoke of the various theories of hypnosis in general.

Drs. Goodwin, Murphy, Mader, and others contributed to the discussion.

December 6.—Dr. D. J. G. Campbell, on behalf of the staff of the Halifax Visiting Dispensary, brought to the notice of the Branch the fact that a case of gonorrhœal ophthalmia in an infant six weeks old had been refused admission to the Victoria General Hospital, by virtue of a by-law excluding patients under six years of age, and asked that the Branch take some action in the matter.

After considerable discussion, it was moved by Dr. Campbell, and seconded by Dr. Doyle, that a committee of eight be appointed to consider the whole question of hospital accommodation, this committee to report on January 3rd. The motion carried: Drs. Stewart, D. A. Campbell, Kirkpatrick, Farrell, Mathers, Doyle, Eagar and D. G. J. Campbell (chairman) to constitute the committee.

Dr. R. Evatt Mathers read a paper entitled, "Acute Otitis Media and its Treatment," which will be published in a later number.

Dr. Kirkpatrick, in discussing the paper, mentioned several points to be borne in mind by the general practitioner in the treatment of acute otitis media, such as local depletion, hot applications, and rest in bed, frequent cleansing with weak bichloride when discharge is present, etc. Dr. Kirkpatrick disapproved of the common custom of plugging the external auditory canal with cotton wool. He recommended instillations, such as boracic acid and alcohol, after the febrile stage is over.

Drs. Farrell, C. D. Murray, King, and others also took part in the discussion, which was closed by Dr. Mathers.

Dr. Goodwin read his paper, "The Flavoring of Medicines," which subject, he said, was of great practical importance. He first took up the substances in common use for flavoring purposes, mentioning the various forms of syrup, the elixirs of the U. S. P., licorice, chloroform, and the different aquæ of the B. P. He then stated his experience of the best methods of disguising certain special drugs, as salicylate of soda, quinine, the bromides and iodides, castor oil, etc.

Nearly all of the members present took part in the discussion of Dr. Goodwin's paper, after which the meeting adjourned.

Personals.

Dr. Robert King, formerly associated with Dr. Mader of this city, has been appointed to the staff of the Nova Scotia Hospital.

Dr. F. E. Lawlor, for some years physician to the Nova Scotia Hospital, has been appointed Assistant Superintendent in place of the late Dr. J. A. MacKenzie.

Dr. D. T. C. Watson was married on the 21st ult. to Miss Emma Morton. The bride is a sister of Dr. Morton, Bedford, and

a graduate nurse of the Victoria General Hospital. The NEWS extends congratulations.

Dr. A. I. Mader read an interesting paper before the N. S. Branch British Medical Association on the 22nd ult., entitled, "Observations on Surgical Technique." His remarks were an epitome on his recent visit to some of the New York and Boston hospitals.

The following appointments have been recently made to the Permanent Army Medical Corps of Canada: Lieut.-Colonel **G. C. Jones**; Major, **G. L. Foster**; Captains, **C. D. Murray, T. J. F. Murphy.**

Book Reviews.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles. By leading members of the Medical Profession throughout the world. Volume III., Fifteenth Series, 1905. Published by J. B. LIPPINCOTT COMPANY, Philadelphia. Canadian Representative, Charles Roberts, 1524 Ontario St., Montreal. Price $2.00.

The high standard attained by recent numbers of the CLINICS is manifested in the volume before us. The first article—nearly forty pages—is a most valuable contribution on "The Therapeutic Uses of the Rontgen Rays," by Dr. George C. Johnston, Pittsburg. Herein is contained useful suggestions in carrying ont details in treatment and explanations of faulty technique. There are besides fifty-three well-executed plates, illustrating the text in this one article. We have been especially interested in Dr. Huchard's contributions on "The Musculo-Tonic and Diuretic Action of Formic Acid and Formiates." How many of us might be benefitted when "a person taking formic acid soon feels more strength, vigor and activity; he moves without trouble; he no longer apprehends effort or work," etc. "The Opotherapic Treatment of Renal Insufficiency," by Professor Teissier, of Lyons, France, gives further light on the effects of renal serumtherapy as studied by the author, Renault and others. We most heartily congratulate the editor and publishers in issuing every quarter so much material of scientific and practical worth.

Practical Massage, in Twenty Lessons. By HARTVIG NISSEN, Instructor and Lecturer in Massage and Gymnastics at Harvard University Summer School; Director of Physical Training, Brookline Public Schools; former Acting Director of Physical Training, Boston Public Schools; former Instructor of Physical Training at Johns Hopkins University and Wellesley College; former Director of the Swedish Health Institute, Washington, D. C., etc., etc. Author of "Swedish Movement and Massage Treatment," "A. B. C. of Swedish Educational Gymnastics," "Rational Home Gymnastics," etc. With 46 original illustrations. 168 pages, 12mo. Price, Extra Cloth, $1.00, net. F. A. DAVIS COMPANY, Publishers, 1914-16 Cherry St, Philadelphia.

The above concise work is from the pen of an expert teacher and masseur, whose experience has covered a period of thirty years. We quote from the preface: "My method is a combination of what I have found to be the best and most useful 'manipulations' and 'movements' in other systems, as well as original." Twenty lessons are dealt with in a plain and practical manner, and the illustrations, which number about fifty, are of great value in following the text. We fear this important form of treatment is too much neglected in these provinces. This we cannot emphasize too strongly, particularly as the reviewer has seen in many instances the great benefits derived from this art. We can commend Nissen's work as worthy of study and an excellent guide to massage.

The Physician's Visiting List for 1906. Fifty-fifth year of its publication. For 25 patients weekly, $1.00; for 50 patients weekly, $1.25; for 75 patients weekly, $2.00, etc. Also Perpetual and Monthly additions. Published by P. Blakiston's Son & Co, 1012 Walnut Street, Philadelphia

This neat and popular visiting list has for many years been reviewed in our journal, and nothing can be added to our former favorable opinions. No matter what may be the number of patients, the size of the book is increased only in thickness; for example, 50 patients weekly having two pages dated for each week, and 75 patients three pages. It also contains, as formerly, incompatibilities, treatment of poisoning, etc., etc. We again endorse the New York *Medical Record*: "For completeness, compactness, and simplicity of arrangement, it is excelled by none in the market."

Therapeutic Notes.

IDIOSYNCRASY OR SOME OTHER REASON—We meet with many cases in practice suffering intensely from pain, where for an idiosyncrasy or some other reason it is not advisable to give morphine or opium by the mouth, or morphine hypodermically, but frequently these very cases take kindly to codeia, and when assisted by antikamnia its action is all that could be desired. In the grinding pains which precede and follow labor, and the uterine contractions which often lead to abortion, in tic douloureux, brachialgia, cardialgia, gastralgia, hepatalgia, nephralgia, and dysmenorrhœa, immediate relief is afforded by the use of this combination, and the relief is not merely temporary and palliative, but in very many cases curative. The most available form in which to exhibit these remedies is in "Antikamnia & Codeine Tablets." The physician cannot be too careful in the selection of the kind of codeia he administers. The manufacturers of "Antikamnia & Codeine Tablets" take every precaution, in fact, they refine and purify every grain of codeia which enters into their tablets. This not only prevents habit and consequent irritation, which follow the use of impure codeia, but it does away with constipation or any other untoward effect.

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