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CEREBRAL ARTERIOSCLEROSIS.

BY

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The subject of arteriosclerosis of the cerebral vessels is one which is not taken up to any extent in the usual text-books although a good deal has been written on it in the past few years in the various medical journals. This is probably to be accounted for by the difficulty, especially in the more advanced cases, of differentiating between this condition and the various senile psychoses, and the inability to demonstrate the dependence of all the symptoms on the condition of the diseased vessels.

The etiological factors are those of arteriosclerosis in other parts of the vascular system, age, sex, heredity, excessive muscular exercise, syphilis, over-eating and over-drinking, intoxications and infections, and so on. But the action of trauma as a causitive factor seems to be particularly marked on the vessels of the brain and cord, according to Sperking and Kronthal (Neurolog. Centralblatt, 1888). And in this connection it is necessary to remember that the cerebral vessels may be extensively sclerosed without corresponding evidence of the condition in the vessels of the periphery. Examination of the fundus oculi will in these cases often give evidence of the condition of the cerebral vessels and should never be neglected in the examination of the patient. Sclerosed vessels have what has been described by Marcus Gunn as a silver-wired appearance, that is, the light reflex is more marked, and where the arteries pass over the veins the latter are indented by the more rigid arteries. Whether trauma acts here as a direct etiological factor by increasing in a reflex way the blood pressure, thus producing thickening of the vessels, or as is more usual gives rise to symptoms of an arteriosclerosis which has been previously present, but in a latent condition.

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must be determined by a careful investigation of the previous history.

Clinically arteriosclerosis of the nervous system may be divided into at least two classes:

A. The mild or nervous form (Windscheid), characterized by rapid psychical exhaustion with a remarkable diminution in the aptitude for mental work. The individual is still capable of indulging in his habitual occupations, but becomes more easily fatigued. In the presence of new ideas and new business ventures he has the subjective feeling of inability to grasp the idea and handle it as he formerly would have done. Mental activity is only possible in well worn grooves. After a few moments of mental exertion he feels exhausted, often he cannot apply his attention to reading for any length of time without fatigue.

Not exceptionally we find transient loss of memory or a transient difficulty in speech, with complaints of headache and giddiness. Modifications of character may be noticed in certain cases, they become irritable and nervous, and a man who has formely shown the greatest consideration for others may become self-willed and imperious. He no longer possesses a mental equability but frequently loses control of himself, not having the necessary coolness to direct his affairs or exercise his profession, he takes a depressed view of everything and compares the present with "the good old days." In still other cases he is apathetic and somnolent.

Headache is frequently present in cerebral arteriosclerosis. In the morning on awakening the patient complains of a heavy feeling of pressure on the head, usually bilateral. During the day it changes to a definite headache, often pulsating. In some cases it follows or becomes more intense if the patient indulges in mental or physical exertion or after the ingestion of alcohol. It should not be forgotten that arteriosclerosis may give rise to an intolerance of alcohol, even in small quantities, and this may be one of the early symptoms of vascular disease. Abnormal sensations in the limbs, tingling and pricking sensations, sensations of heat and cramps, often accompanied by transient paresis, or simply a heavy feeling in the limb which may pass off in a few minutes or hours, due to a modification in the circulation of the cerebral centres.

Vertigo is frequently an early sign and one of importance, often present when the patient makes a simple change of position, as in rising from the recumbent posture. The patient often complains of a definite subjective feeling of movement inside the head and occasionally suffers from tinitus aurium. One must exclude other cerebral and organic affections capable of producing vertigo before attributing it to arteriosclerosis. Sleep is in many cases disturbed. There is difficulty in getting to sleep

and the patient wakens early, and what sleep they get is often disturbed by dreams and is unrefreshing.

Ocular symptoms are not very uncommon, cases have been reported of partial or complete optic atrophy due to pressure of the sclerosed carotid or ophthalmic arteries on the optic nerve. It seems well established also that in the early stages of arteriosclerosis of the smaller vessels, spasm of the vessels may occur from time to time, or that during periods of low blood pressure collapse of the vessel may take place, producing, when the vessels of the eye are affected, transient blindness. Wagenmann and Zentmayer have each reported such cases in which they have observed the onset of the spasm, the subsequent ischæmia of the retina and the relaxation of the spasm with later return of vision.

Neurasthenia occurring in a patient of about 40 or 45, who previously has shown no stigmata of functional trouble should suggest the onset of arteriosclerosis. It may be an early indication of malignant disease, tuberculosis or diabetes, and it occurs in old syphilitic candidates for general paresis, but it not rarely is the earliest sign of arteriosclerosis.

One is often struck with the relative acute onset of the symptoms of arteriosclerosis. In the course of a few weeks, after some acute illness or following some mental or physical shock or strain, the patient apparently ages considerably. Evidently owing to the proverbial last straw in the scale of nutrition of the brain and various organs. "It is singular how long the rotten will hold together provided you do not handle it too roughly." The patient always recognizes the existence of the malady and there is often the fear of becoming insane, but the symptoms frequently remain unaltered for years. Death generally results from apoplexy, sclerosis of the coronary arteries or intercurrent affections. There is little tendency to passage into one or other of the more progressive forms.

The clinical phenomena are in these cases referable to a partial blood stasis, never severe enough to lead to destruction of large areas of nerve tissue. According to Alzheimer, the nerve cells in the cortex show pronounced pigmentary atrophy, but preserve a normal structure. There is an absence of phagocytes. "Spider cells" occur singly in the deeper layers of the cortex and the glia is increased in the superficial layer.

B. The second class of cases is usually found at a slightly more advanced age, about 55 as a rule. The mental faculties are often enfeebled with frequent loss of emotional control. The intelligence is diminished with more or less dementia. The gait of these patients is often typical; progression is slow, with short steps, dragging the feet not so much in a spastic way, but rather as if from weakness. The lower limbs are slightly

flexed at the joint, the trunk slightly inclined forward; one foot is advanced only five or six inches in front of the other. The tongue seldom deviates to one side and there is never hemianopsia: the reflexes are increased. There is no aphasia, but often pronounced dysarthria and sometimes dysphagia,—in fact the first stage of pseudo-bulbar paralysis. In these cases one often sees hemiplegia coming on suddenly, but not a true apoplectic stroke—perhaps a loss of consciousness for a few minutes, but usually with no loss of consciousness, and power returns inside a few hours or days. The hemiplegia is usually incomplete: on recovery there remains perhaps only a difficulty in doing finer movements with the fingers. In the lower extremities one can more easily recognize the remnants of paralysis, consisting in a slight circumduction of the leg in walking, with a slight dragging of the toe.

The disease commences with headache, giddiness, and weakness of memory, with severe psychical disturbance superadded or from the first. The patient may become emotional, resistive and apparently apathetic; lucid intervals quickly giving place to apathy are characteristic. The patient is very easily tired. The character is mostly a depressed melancholic one, never exhalted, illusions and delusions of grandeur are never present. Gradually the dementia becomes more and more complete, but always with the peculiarity that certain parts of the former personality remain intact for a long time. The patient for long time recognizes his own mental deficit, but ultimately falls into a dementia reminding one, as Binswanger remarks, of animals without cerebral hemispheres.

The pupils seldom loose their reactions. Blindness more or less transient occurs naturally more frequently than in the milder cases. There may be attacks of giddiness or epilepsy, and focal symptoms may develop such as apraxia or aphasia. The duration varies from a few months to five or six years. Death results from apoplexy, heart failure, renal insufficiency or pneumonia.

On post mortem the dura is shown to be more or less closely adherent to the cranium. The pia shows a slight of thickening, especially perhaps, in the frontal region. The convolutions are shrunken, the ventricles are dilated (senile hydrocephalus), the ependyma of the ventricles is wrinkled, giving the appearance of the roof of a pup's mouth, as Marie has vividly described it. The basal nuclei do not project as much as usual into the ventricles. There is thinning of the corpus callosum; arteriosclerotic foci may give the cortex a worm eaten appearance. On horizontal section of the brain the vessels in the lenticulo striate nucleus especially, project gaping above the cut surface; there is thickening of their different coats. The perivascular spaces show a

general dilatation more or less marked, accompanied by a rarifaction of the surrounding nervous tissue.

As the pathological factor underlying this condition and accounting for the transient hemiplegia and pseudo-bulbar palsies, one finds what Marie has described as a condition of "foyer lacunaire de désintégration," that is, little irregularly shaped cavities which look as if the cerebral tissue had been torn or destroyed. They vary in size from a hemp seed to that of a pea and in number from 1 to 10. Their usual site is the external part of the lenticular nucleus and in neighbouring internal capsule, optic thalamus and candate nucleus. They are never met in the peduncles, bulb, or cord, and rarely in the cerebellum. Under the microscope they have the appearance of a minute hæmorrhage or softening period. In recent lacunæ the periphery of their altered areas is infiltrated with numerous granular bodies (phagocytes), the cerebral tissue is breaking up and in a state of retrogression. One finds also bands of neuroglia and various sized vessels for the most part permeable, although usually the walls are thickened.

In the later stages the appearance is different. The phagocytes have disappeared, the circumference of the lacuna shows a fibrous tissue wall of varying thickness. The cavity is sometimes traversed by strands of connective tissue, with vessels which show sclerosis but are always permeable. In the cord the volume is diminished. The posterior columns stand out prominently; the vessels are sclerosed.

According to the localization of the sclerotic process in the brain the clinical and anatomical picture varies somewhat, but to differentiate clinically the various anatomical types such as encephalitis, subcorticalis chronica (Binswanger), perivascular gliosis, the senuile cortical atrophy of Alzheimer, etc., as certain German authorities attempt to do, seems to me premature, further clinical material is required.

Under the influence of the general causes of arteriosclerosis the vessels of the brain are altered and the nutrition of the organ suffers, the different parts of the brain atrophy and bring about the dilatation of the ventricles and the perivascular spaces. These latter probably play a direct role in the causation of hæmorrhage which is so common in the region of the lenticular nucleus. The vessels having lost their support and being more or less rigid are more liable to rupture. In Marie's series of fifty cases, showing these lacunæ, hæmorrhages were present in 16, and thrombosis in seven. If the lacunæ have interfered with the motor fibres in the internal capsule we have more or less degeneration in the pyramidal tracts, probably accounting for the characteristic gait.

Differential diagnosis: Clinically, we must differentiate between this

condition, senile dementia and general paresis. In severe grades of arteriosclerosis one is struck with the slowed and laboured character of the mental processes, indicating interference with the association faculty; this is associated with a feeling of helplessness and indecision. The rapidity with which such interference arises, disappears and appears again is characteristic. The consciousness of personality and the insight into their own condition remains much longer present. The affections become dulled but continue normal in character. Apart from the attacks of irritability the essential phenomena in arteriosclerotic atrophy are the direct effects of the focal lesions whereas in senile and paralytic dementia and abnormal mental phenomena, excitement and delusions are more prominent.

Anatomically, general paralysis and senile dementia are easily distinguished. Arteriosclerosis of the brain is characterized by foci of degeneration arranged around diseased vessels in which foci the nerve cells and fibres are destroyed and there is a corresponding overgrowth of neuroglia. Secondary degenerations are common, but beyond these primarily affected areas, the brain is practically normal. In general paralysis and senile dementia the process is a diffuse one.

Treatment in the milder nervous cases is most important. The general condition should be explained to the patient so that he can cooperate in the proper attention to details. He should lead a regular life, avoiding over exertion, mental or physical, and excitement. If his mind can be occupied by some gentle hobby, so much the better. With regard to the important factor of diet, Osler, quoting George Cheyne's 13th aphorism in his essay on Regimen, says: "Every wise man after 50 ought to begin to lessen at least the quantity of his aliment, and if he would continue free of great and dangerous distempers, and preserve his sense and faculties clear to the last, he ought, every seven years, to go on abating gradually and sensibly, and at last descend out of life as he ascended into it, even into the child's diet."

Medicinally, a mild saline before breakfast will help to keep the blood pressure down. Potassium iodide in 2 to 5 grain doses, t.i.d., or the sodium salt as being less depressing, is useful for the same purpose and may be combined with the sodium nitrite, or if necessary with amyl nitrite with good effect. The withdrawal of a pint or so of blood in some cases is very beneficial and is not resorted to sufficiently often in these days.

THE CUTANEOUS MANIFESTATION OF TERTIARY SYPHILIS.

BY

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While the division of syphilis into primary, secondary and tertiary periods is convenient for clinical and descriptive purposes, it is to be remembered that there is no definite line of demarcation between these periods and that many of the symptoms met with in the late secondary stage can just as properly be classed as tertiary in character. It is, however, in regard to their cutaneous manifestations that the secondary and tertiary stages are more clearly defined. The symmetrical, generalized eruptions which appear during the secondary stage are comparable to the exanthem of the acute infectious fevers, and, as in them, are but one expression of a general constitutional disorder. The slowly spreading eruptions of the tertiary stage, on the other hand, are mostly assymmetrical and localized in situation, and are not associated with any disturbance in the general health of the individual. Rarely, and then usually in cases of what one may call malignant syphilis, lesions presenting the characters of the tertiary period may be found side by side with a generalized eruption of a late secondary form.

The cutaneous lesions of tertiary syphilis are readily divided into two forms, the nodular or tubercular variety, and the gummatous. The former is of much more frequent occurrence, only 10 of 120 cases collected from the Dermatological Clinic of the Montreal General Hospital being of the gummatous variety. The tubercular syphilide begins as slightly raised, painless nodules, dull red in colour, of about the size of a pea and grouped in an irregular manner. As the disease progresses the lesions show a tendency to form ring-shaped or serpiginous figures. The lesion tends to spread slowly by the formation of new nodules, the older ones either becoming absorbed or, as is more frequently the case, ulcerating and healing without much loss of tissue. The disease process involves the corium, but does not extend into the subcutaneous tissue, and consequently the destruction of tissue is not great and the resulting cicatrix not necessarily disfiguring. Thus, in a patch which has existed some time, one finds a raised margin, where the disease is invading new tissue, behind this a zone of ulceration, and in the centre the cicatrices left as the ulcers heal. The rate at which the process spreads varies much in different individuals, but it is usually very slow, and one frequently meets with cases in which, after lasting a year or more, the

disease has covered an area not larger than the palm of the hand. There is little tendency to spontaneous cure, but in many instances the advancing margin is the only portion of the patch in which the process is active, healing having kept pace with the invasion of fresh tissue. The colour of the cicatrices is at first dull red or raw ham. It then gradually fades, and in the course of six months or a year it closely approximates to that of the surrounding skin. In some instances, however, where the tissue destruction has been deeper, thicker opaque white scars form. There is not the same tendency to a coppery staining which is such a constant feature of the healing lesions of the secondary stage.

The gummatous form of tertiary syphilide begins in the subcutaneous tissue and involvement of the skin only occurs when the gumma breaks down. When the gumma first forms it is noticeable only as a hard, painless, subcutaneous nodule or tumour, varying in size from a bean to a hazel nut. As it enlarges the overlying skin becomes involved, showing at first a dull red, then more purplish, and finally it sloughs and the broken down gumma discharges, leaving a characteristic punched out ulcer, round or oval in shape. Occasionally one meets with a diffuse gummatous infiltration of a large area of skin, dull red or bluish in colour, over which are scattered several small ulcers, not so deep as in the form already described and having a slightly raised and sometimes nodular margin.

The diagnosis of tertiary syphilis of the skin does not usually present much difficulty. In the gummatous form a single lesion may for a time be difficult to distinguish from a commencing furuncle or abscess, but as the overlying skin breaks down it soon declares its true nature. The ulcerating granulomata must be differentiated from lupus vulgaris, tuberculous ulceration of the skin, rodent ulcer and blastomycetic dermatitis. From lupus, when the disease has lasted many months, the size of the lesion as compared to its duration is of importance. Lupus progresses much more slowly than syphilis. The age of the patient is also a determining factor, lupus being more common in youth and early adolescence, while as most cases of syphilis are of the acquired rather than the inherited form, the tertiary symptoms occur later in life. The character of the lesions will generally decide the matter; the soft reddish brown or greyish tubercles of the lupus patch being quite unlike the hard nodules of syphilis. In the rarer hypertrophic form of lupus, however, there is a closer resemblance between the two conditions. Tuberculous ulceration is always associated with other forms of tuberculosis, pulmonary, glandular or generalized. Rodent ulcer is excluded by the absence of the infiltrated border of new growth preceding the breaking

down, such as we see in all cases of tubercular syphilis, and also by the excavating character of the ulceration. From the gummatous form, the gummatous form, the history of a subcutaneous tumour preceding the skin lesion will suffice to distinguish it. Blastomycetic dermatitis closely resembles the tertiary syphilide and it is at times difficult to decide between the two diseases. Some dermatologists are of opinion that the blastomyces parasite may even become engrafted upon a syphilitic ulceration. In doubtful cases the presence of the yeast fungus in the tissues can be demonstrated microscopically. And, finally, the rapid improvement of tertiary syphilitic lesions under treatment by iodide of potash will clear up the diagnosis in all doubtful cases except as regards blastomycetic dermatitis, which is also benefitted by the iodides.

An analysis of 120 case reports of tertiary syphilides has furnished the following data regarding some of the features of the disease.

The number of individual lesions is usually small. In 120 cases, 42, or 35 per cent., had only a single lesion; 27, or 22 per cent., presented only two lesions, and in 52, or 43 per cent., there were three or more.

A symmetrical distribution was noted in 103 of the cases, more or less roughly symmetrical in 17.

Practically every portion of the body may be attacked, but the disease shows a decided predilection for certain situations. Of 220 individual lesions of which the situation was noted, 63, or 29 per cent., involved some part of the face. Of these there were 24 upon the forehead and 29 upon the nose and cheeks. The arms and legs were about equally affected, 54 lesions being situate upon the arms against 55 on the legs. The neighbourhood of the larger joints is another favourite situation, 52 lesions, or 28 per cent., being thus located. The shoulder is an especially common locality, it being involved 22 times or in nearly one-half of the total lesions about the joints. Among the most infrequent situations were the scalp, genitalia, mammary glands and heel, in each of which there was only one instance. The triangle overlying the sacrum, which generally escapes in secondary eruptions was only involved twice.

The chronicity of the disease is well shown by the following table. Of 57 cases of which I have notes:

33 cases had lasted one year or less.
9 cases had lasted 1 to 2 years.
3 cases had lasted 2 to 3 years.
2 cases had lasted 3 to 4 years.
5 cases had lasted 4 to 5 years.
6 cases over 5 years.

Lesions were reported by patients to have lasted 6, 8, 10, 12, 13, and 25 years. In all probability this long duration would be more properly classed as a frequent recurrence rather than continuous presence of the sore. There were 22 cases lasting under one year, the average duration of which was four months.

The length of time which had elapsed between the primary infection and the last appearance of tertiary symptoms was worked out in 33 cases.

Between	2 and	5 years after the first infection,	19 cases.
Between	5 and 10 years after the first infection,		8 cases.
Between	10 and 15 years after the first infection,		8 cases.
Between	15 and 20 years after the first infection,		3 cases.
Between	20 and 25 years after the first infection,		3 cases.
	30 years after the first infection,		1 case.

This shows conclusively that a person who has once suffered from syphilis can never be looked upon as entirely free from any danger of late tertiary lesions, even though many years have elapsed without the disease having given any sign of its existence. Much of course depends upon the form and duration of treatment during the active or secondary stage. This point I endeavoured to establish, but in the class of patients from whom these records were obtained it was impossible to determine what form of treatment if any had been adopted during the secondary period.

The 120 patients consisted of 51 males and 69 females. The average age was 36, the youngest being 19 and oldest 70.

An interesting point to determine is the proportion of cases in which it is possible to get a definite history of syphilis. Unfortunately in only a small number of the total cases was this information possible, partly because in many of the female patients it was not thought advisable to inform them of the true nature of their disease, and thus the point could only be determined by a previous history which, though perhaps pointing strongly to an attack of secondary syphilis, was not conclusive. Then, the diagnosis was not dependent upon the existence or otherwise of a previous history and in many reports there is no mention of whether the question had been asked or not. These it would not be right to include as having no previous history, for whilst amongst the males of the educated portion of the community a knowledge of the grave nature of syphilis is almost universal and the probability of an individual forgetting that he had ever suffered from the disease is extremely slight, among the class of persons applying for out-door relief at our hospitals a history of previous illnesses is notoriously untrustworthy. By taking

only those cases of unquestioned diagnosis and from which the previous history could be readily obtained, the majority being males, we find that out of 45 cases 15 or 25 per cent. had no memory either of having had the disease or of any symptoms which would go to show that the disease had been present but unrecognized.

In the treatment of syphilis in general it is now universally recognized that mercury and the iodides are the only reliable therapeutic agents. Many writers, however, refuse to accord to the iodides by themselves any value as a specific remedy in syphilis, looking upon them merely as an aid to the action of mercury. Dermatologists are inclined to regard each as having its particular place according to the period of the disease, mercury being indispensable during the secondary stage, and both of value in the tertiary. That the iodides used alone may be regarded as specific in the cutaneous forms of tertiary syphilis is, I think, proved by the results obtained from its use in the Montreal General Hospital, where we can say that in all cases in which there was a record of continuous attendance of at least a month, there was marked improvement noted. Unfortunately, the number of cases treated to a conclusion was not large, mainly because a large proportion of out-patients cease to attend as soon as they have any evidence of improvement. Of forty cases treated to a conclusion, eight were cured within one month, seven in six weeks, eleven in two months, three in two and a half months, nine in three months, and two in four months. The average time of disappearance of all symptoms of the disease in these forty cases was about two months. There has been much controversy over the proper method of administering the iodides. Many writers claim that a small dose given before meals is as efficacious as a large dose given after meals. On this point I can venture no opinion, the custom of my chief, Dr. Shepherd, of giving the drug after meals in large doses well diluted having been followed in all hospital cases. The initial dose given in almost all cases was twenty grains three times a day taken after meals in a tumbler of water. If this was not sufficient to produce immediate improvement in the eruption the dose was increased once a week, five grains at a time, until the patient was taking forty or even sixty grains three times a day. It was, however, rarely necessary to exceed the initial dose of twenty grains. That the quantity of the drug given was of great importance was shown many times by the cases which were referred to us from other clinics with a diagnosis excluding syphilis because of their failure to respond to doses of five or ten grains three times a day. These rapidly yielded to the larger doses. I believe, however, that it is wise to substitute tonics for the iodides in these cases for a couple of weeks before putting them on larger doses.

Potassium iodides was most commonly used, but in a few cases where it produced untoward symptoms, the iodide of ammonium was substituted for it with benefit. It was remarkable in how few cases large doses of iodide of potash led to intoleration. This may be partly because of the method of administration, but I think anyone who has had experience with its use in both tertiary syphilis and other conditions cannot but be struck with the remarkable absence of the usual untoward effects in tertiary syphilis. So much is this the case that a marked intolerance of large doses of iodide of potash leads one to doubt the diagnosis of syphilis. Locally, the unguentum hydrargyri ammoniatum of the B. Ph. was used.

In conclusion there are several points in connection with tertiary syphilis of the skin which I would like to emphasize. In the matter of diagnosis, the absence of a previous history of syphilis must not be given too much weight. A case in point is the following:—W. I., male, aged 57, unmarried, came to me on account of an eruption on one buttock and leg which had defied all attempts at healing by external applications. Clinically it was a tertiary syphilide. The patient was an intelligent man, not one of the hospital patients, and admitted having had gonorrhœa thirty years previously, but had no memory of having taken treatment for more than a few weeks, and was positive he had not an eruption on the skin either at that time or since. Twenty grains of iodide of potash caused the eruption to heal completely in three weeks. This case also illustrates another point, namely, that long freedom from symptoms, in this case thirty years, must not be held to negative syphilis, until the therapeutic test has been applied.

The tendency of the disease to reappear is shown by the following:—J. L. M., male, aged 30, came to the clinic in February, 1890, with a roughly symmetrical tubercular eruption over the arms and legs. There was a history of syphilis five years previously. After a few weeks he ceased attendance to return in December, 1890, nine months later, with ulcerating lesions on each shoulder and the left elbow and knee. After a few visits we did not see him again until nine months later, September, 1891, when he had an ulcer on the left deltoid. In July, 1892, after nine months again, he came back with an ulcer on his forehead.

Here we had three relapses within a little over two years, but on each occasion treatment was only carried on for a few weeks at a time. The other side of the picture is shown in another hospital case. Mrs. F., aged 48, Polish Jewess, came to the clinic in June, 1898. She gave a history extending over five years, of an ulceration followed by scarring of a peculiar character and never healing completely. On the right

elbow there was an irregularly shaped patch measuring four by three inches with a raised margin covered with crusts which on removal showed shallow ulcers. The scar tissue was coarsely cribriform, the criss-cross lines in it being raised considerably above the surface of the skin. Through an error in writing the prescription she was given forty grains of potassium iodide three times a day and she returned in a week with very marked improvement, and in four weeks the ulcers were completely healed. She volunteered the information that she had taken the same medicine for years from a clinic in Vienna, but that it had never done more than keep the disease in check. The iodide was kept up in diminished doses, 10 grains, for seven months. This woman continued to come to the clinic at intervals for five years for eczema intertrigo; but there has been no return of the disease. This case too emphasizes the necessity of using large doses of the iodide.

DIAGNOSIS OF THE COMMONER INFLAMMATORY DISEASES OF THE EYE.

BY

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There are certain inflammatory affections of the eyeball that are not infrequently mistaken for one another, especially by those who are not brought in daily contact with them. An error made in diagnosis is not only likely to be of serious consequences to the organ affected, but is apt to prove humiliating to the physician or surgeon who first sees the case and does not at once institute the treatment that each demands. Under ordinary circumstances no great difficulty should be experienced in classifying these various affections and distinguishing between inflammations of the conjunctiva and iris, and glaucoma, three conditions in which mistakes are of not uncommon occurrence. The treatment of each is so widely different that those remedies that are indicated in one are contraindicated in either of the others.

Speaking generally, these inflammations have characteristics which, to the casual observer, resemble one another so closely that the real disease is quite easily overlooked. It happens that the reddened appearance presented by the eyeball (due to the engorgement of otherwise invisible vessels upon a background of the white sclera) is common to most inflammations of the eye. Not only in the superficial, but in the deep-seated ocular lesions as well, one or all, the venous and arterial systems of the anterior segment of the globe become affected and more or less deeply tinge the otherwise whitish globe.

Taking this clinical observation as a starting point and combining with it careful inspection of the eye itself, we may readily distinguish the various eye inflammations from one another and from affections non-inflammatory in character, by means of the following plan:

1. The eyeball is wholly or partially reddened without discomfort or other symptom.

2. The eyeball is reddened and uncomfortable, but without actual pain.

3. The eyeball is red and distinctly painful.

Taking these divisions up in the order outlined and referring briefly to the most important symptoms and characteristics of the various infections:

1. THE EYEBALL IS WHOLLY OR PARTIALLY REDDENED WITHOUT DISCOMFORT OR OTHER SYMPTOMS. Practically only one condition is included under this heading, viz: *subconjunctival hæmorrhage*, which is not an inflammatory affection. There is no discharge from the eye, and close inspection of it shows that the redness is localized as a deep red, smooth, uniform patch, obscuring the scleral vessels. Except in the recurrent type and in patients over 40 years of age (when Bright's disease, arterio-sclerosis or organic heart lesions may be suspected) it is an innocent condition.

2. THE EYEBALL IS REDDENED AND UNCOMFORTABLE, BUT THERE IS NO MARKED PAIN. Under this head come (1) hyperemia of the conjunctiva. (2) Foreign bodies in the cornea and conjunctival sac. (3) Phlyctenules on the conjunctiva. (4) Acute and chronic conjunctivitis.

Of the various inflammations of the conjunctiva the milder hyperemias are largely the result of local conditions such as errors of refraction and expo-ure to unhealthy surroundings as wind, dust, smoke and impure atmosphere. These present no marked symptoms outside of itching, smarting, burning and foreign body sensations. The lining of the everted lids looks redder and rougher than normal. The redness eventually extends to the ocular conjunctiva, where the subconjunctival vessels, especially in the upper and lower cul-de-sacs are enlarged. No secretion forms, except a little at the inner canthus, which occasionally glues the lid edges together in the morning. The more severe conjunctival inflammations such as acute conjunctivitis, purulent conjunctivitis, etc., are due to an invasion of the mucous membrane by one or more of the micro-organisms that infect it. In the secretions of the normal conjunctival sac a variety of micro-organisms are found. Although a number of these bacteria (cocci or bacilli) are non-pathogenic in character, both they and the pathogenic varieties are generally present. Almost all

of them are capable of setting up an inflammation under favourable conditions. Just what constitutes this favourable condition it is not possible to say in every instance, but we do know that an abrasion or some irritation of the mucous membrane is the most favourable aid to microbic propagation and its pathological results.

In most forms of acute conjunctivitis a microscopical examination of the discharge makes a diagnosis comparatively easy. For instance, in the variety known as acute contagious conjunctivitis, more easily recognized under the more common term of "pink eye," the Koch-Weeks bacillus is found in the secretions, while the pneumococcus and the diplobacillus of Morax-Axenfeld and the gonococcus of Neisser is found in other varieties of conjunctival inflammations.

The various forms of conjunctivitis have signs and symptoms similar to one another, the character of which depend largely upon the severity of the inflammation. Usually there is no distinct pain, but smarting, burning and foreign body sensation, with a mucous and muco-purulent or purulent discharge which is found on the lid edges and at the inner canthus, in sufficient quantities to glue the lashes together so that they must be washed apart before the eyes can be opened after a night's sleep. The injection and swelling of the conjunctiva, and a loss of its transparency, is well seen on everting the lids and inspecting the posterior aspect of the globe. The conjunctival vessels on the globe are in most cases enlarged, particularly at the junction of the lids and eyeball in the retrotarsal folds. The conjunctival vessels run loosely in the conjunctival tissues, so that they may always be differentiated from the deeper vessels by the fact that they can easily be moved to and fro with the membrane itself.

ACUTE CONTAGIOUS CONJUNCTIVITIS, commonly known as "pink eye," is usually met with in the spring and fall months, when probably set up by wind and infected dust, it is frequently epidemic. In about two days after infection the ocular conjunctiva becomes deeply injected, giving it a bright red appearance, the redness extending to the margin of the cornea; hence the name "pink eye." The conjunctiva is swollen and presents a succulent appearance. Photophobia and lachrymation are a source of discomfort to the patient, and pain is sometimes present, but not as severe as in the deeper inflammations of the eyeball. Slight hæmorrhages are sometimes present on the ocular conjunctiva. The discharge, which is muco-purulent in character, is usually quite ropy and accumulates in the form of flakes in the retrotarsal folds. The lids stick together in the morning, while dried secretion is found adhering to the margin of the lids and to the eye-lashes. Sometimes there is a slight

chemosis present, in which case the nutrition of the cornea is liable to suffer and ulceration may take place, not only from pressure upon the vessels in that region, but following infection from the discharge retained in the sulcus. This affection is usually at its height at the end of the third day. It is sometimes accompanied by rise of temperature and other constitutional disturbances. The symptoms gradually subside after a week or ten days, but recovery may not take place until the end of two or three weeks.

PURULENT CONJUNCTIVITIS. It is sometimes difficult to draw a sharp line between the severer forms of acute contagious conjunctivitis and simple purulent conjunctivitis. In the latter, however, the chemosis is greater, while the discharge is more profuse and more purulent in character. The lids also become hard, tense and greatly swollen; the cornea is more often infected and ulceration more frequently occurs. The inflammation permeates the deeper structures and the subconjunctival tissue is infiltrated with inflammatory exudates. In the more serious cases of purulent conjunctivitis the gonococcus of Neisser is usually found. This disease attacks particularly the new-born (*ophthalmia neonatorum*) and the adult (*gonorrhœal ophthalmia*). In *ophthalmia neonatorum* the infection usually takes place during the passage of the child's head through the vagina, so that the symptoms almost invariably show themselves during the first three days after birth. If it occurs at a later period the infection is probably not gonorrhœal but comes from soiled fingers, cloths, towels, sponges, etc. One eye is commonly affected one or two days before the other, although in some cases it is possible, if preventative measures are taken early enough, to prevent infection of the second eye. In the majority of cases, and especially in the severer forms, the gonococcus of Neisser is found to be present in the discharge. There is usually a history of the mother having suffered from a leucorrhœa for some time previous to the birth of the child, or of the husband having recently had gonorrhœa or gleet. The redness and discharge which is slight at first, quickly increases and the lids become shiny and swollen, so puffed out that the upper lid falls down and covers the margin of the lower lid. The palpebral skin shortly after becomes tense and hard and of a dusky red colour, so that it is almost impossible to evert either lid. The conjunctiva is very red and much swollen, presenting a velvety appearance from the enlargement of the papillæ. This congestion rapidly extends to the ocular conjunctiva, which becomes intensely red and edematous, overlapping the margin of the cornea, so that the latter appears at the bottom of a pit surrounded by a hard rim of infiltrated and edematous tissue. The discharge at first slight and

yellowish in colour, is soon very profuse and of a cream-like consistency. It is secreted rapidly, accumulates in the cul-de-sac and flows from between the lids onto the cheek. In consequence of hæmorrhage from the ruptured capillaries the discharge may assume a yellowish-green colour from admixture with blood. The disease usually runs its course in about six weeks. The chief danger is to the eyesight. The disease may affect the cornea, the vitality of which is always lowered, partly by strangulation of the vascular supply induced by the intense edema of the conjunctiva and partly from direct infection. When this occurs the surface of the cornea becomes hazy, dull, and lusterless. This condition is soon followed by the formation of one or more ulcers which spread rapidly, followed by perforation of the cornea into the anterior chamber and the formation of a dense white scar as the opening heals. Fortunately, in these days of antiseptic surgery, there is less danger of the child's eyes becoming infected than formerly. Where a discharge is known to exist regularly, daily cleansing of the vagina should always be insisted upon. After the birth of the child the lids should be wiped dry with a piece of sterilized gauze, the eyes should be carefully opened and with a sterilized medicine dropper one drop of a two per cent. solution of nitrate of silver should be carefully dropped on the exposed cornea. This is the method of Crédé which, if carefully carried out, will greatly minimize the danger of infection. By this method Crédé reduced the percentage of cases occurring in the Leipsic hospital from about ten per cent. to 0.2 per cent.

FOREIGN BODIES in the cornea or conjunctival sac are always to be suspected when the patient complains of constant scratching and a sensation of foreign body. The sac and cornea should be carefully scanned with a magnifying lens when these symptoms are present.

PHLYCTENULES OF THE CONJUNCTIVA are distinguished by the formation of small elevations or pimples on the conjunctiva. This is a disease of childhood and is frequently accompanied by an eczematous eruption behind the ear, on the face and at the corners of the mouth and nose. The child presents a strumous appearance. The phlyctenule consists of a small, solid, reddish elevation, made up of a collection of lymphoid cells beneath the epithelial layer of the conjunctiva. In a short time the epithelium becomes destroyed and ulcer forms. Fresh attacks frequently occur, new phlyctenules appearing on other portions of the conjunctiva before the first outbreak has disappeared. As a rule the disease extends to the cornea, forming ulcers, the resulting scar from which is apt to interfere with vision. The patient suffers from intense photophobia and lachrymation. The child buries its head in the mother's lap or in a pil-

low and seeks dark corners of the room to get away from the light. The lids are tightly closed (*blepharospasm*) and any attempt to open them is met with decided resistance.

THE EYEBALL IS RED AND PAINFUL. These symptoms are common to iritis, glaucoma, phlyctenules and ulcers of the cornea, scleritis and episcleritis.

In IRITIS the redness, beginning as a pinkish hue, is first confined to the corneal region of the ocular conjunctiva, although in a few days all the vessels of the globe are engorged and the eyeball assumes a dusky-red colour. Pain which is slight at first soon becomes very severe and radiates over the brow and sometimes down the cheek. It is usually severe at night, keeping the patient awake. The eyeball becomes very tender and sensitive to the touch, probably due to the involvement of the ciliary body whose blood supply is intimately connected with that of the iris. There is also marked photophobia and a copious flow of tears. Discolouration, loss of luster and a swollen muddy appearance of the iris surface are early manifestations of the inflammatory changes, a brown iris changes to yellow, while a blue iris takes on a greenish hue. The pupil is contracted and its usual reactions to light and accommodation are affected. This is due to a number of causes: The engorgement of the iris vessels: spasm of the sphincter of the iris; exudates into the substance of the iris: or, as usually happens when improperly treated, adhesions of the iris to the anterior capsule of the lens. Exudates are almost invariably present on the posterior and anterior surfaces and margins of the iris and are of glue-like consistency. This is what causes adhesions to form between the iris and lens (*posterior synechiæ*) and is the chief cause of blindness from iritis. The pupil is often bound down to the lens about its whole circumference (*ring synechiæ. exclusion of the pupil*) so that it becomes immovable; or adhesions take place at various points along the pupillary margin, causing the pupil to contract and dilate irregularly when exposed alternately to deep shadow and strong illumination. This irregular dilation of the pupil is shown when a mydriatic is instilled into the eye. Eventually, the pupillary space may become covered with an exudate, and if this be dense, vision is very seriously impaired. This condition is known as occlusion of the pupil.

It not uncommonly happens that iritis is mistaken for conjunctivitis or vice versa, a mistake which may prove very serious as it involves the eyesight of the patient. An error in diagnosis may be avoided by observing the following points of difference between these common forms of ocular inflammation.

IRITIS.	CONJUNCTIVITIS.
Pain.—Often severe; worse at night, felt in and above the eye.	None, but some smarting, burning, and sensation of foreign body.
Redness.—Especially marked as a zone about the corneal margin.	More general.
Pupil.—Contracted, sluggish or immobile; iris altered in colour.	Pupil and iris not affected.
Vision.—Affected.	Not affected.
Lids.—Non-adherent.	Adherence of lids.
Discharge.—Watery.	Mucous or muco-purulent.
Photophobia.—Marked.	None.

PHLYCTENULES OF THE CORNEA present symptoms very similar to those described under a similar condition of the conjunctiva, viz.: intense photophobia, lachrymation, blepharospasm.

ULCERS OF THE CORNEA. The detection of corneal ulcer presents few difficulties if it is at all extensive, although small and superficial ulcerations are easily overlooked. If the reflection from a window be allowed to fall upon the affected cornea the image of the cross bars will appear broken or irregular. One of the surest means of detecting the presence of an ulcer is to allow a few drops of a two per cent. solution of potassium fluoresceid to flow over the surface of the cornea. Fluorescein, gr. viii; liq. potassæ ℥ss: aquæ dest, ℥;). This solution renders the denuded portions of the cornea green or greenish-yellow and accurately maps out the limits of the scar. Corneal ulcers are usually due to the entrance into the corneal substance of some one of the micro-organisms productive of inflammatory conditions. The virulence of the infection depends upon the nature of the bacterium, whether it be the gonococcus, streptococcus, staphylococcus, pneumococcus or other germ. Opacities of the cornea invariably follow ulcers in this situation, the resulting scar materially affecting vision, the defective sight depending upon the situation and density of the cicatrix.

GLAUCOMA. This disease is essentially due to a damming or blocking of the drainage from the interior of the eye. The chief lymph stream secreted in the interior of the eye proceeds over the lens through the zonula of Zinn into the posterior chamber, past the margin of the iris, through the pupil into the anterior chamber, transverses the latter to reach the angle of the anterior chamber formed by the junction of the iris and sclera, passes through the losse tissue at this point, and by diffusion and filtration is taken up by Schlemm's canal and from this canal into the external lymph channels.

Obstruction to the steady escape of the intra-ocular fluids at any point in this drainage system or any undue increase of the fluids themselves, may produce glaucoma. Probably the most important obstruction to the exosmosis is at the angle close to Schlemm's canal. In many excised eyeballs affected with glaucoma the periphery of the iris has been found adherent to the cornea so as to prevent the flow of the fluids in the canal of Schlemm.

Acute glaucoma with which we have to deal, appears in inflammatory outbursts, attended by severe pain in and congestion and redness of the eyeball. Associated with these symptoms is temporary impairment of vision, usually the first symptom, the blurring lasting for a short time, then followed by the vision clearing again. It is also attended by loss of focussing power, and necessitates the frequent changing of glasses, as it usually shows itself in persons over 40 years of age. During these periods the patient notices rings (halos) of various colours about gas jets or other flames. The pupil is dilated and the anterior chamber becomes shallow. Eventually the loss of vision becomes permanent. The pain which is transient and slight at first, soon becomes severe and more constant, and as the disease progresses, almost unbearable. It is referred not only to the eye itself but to the region surrounding the eye, radiating over the brow to the side of the nose and cheek and is very apt to be mistaken for facial or supra-orbital neuralgia. The eyeball, slightly congested at first, soon becomes plainly red and inflamed, especially in the zone surrounding the cornea (ciliary region), while the scleral vessels are dilated and tortuous. The cornea is hazy and has a breathed on appearance and finally becomes more or less insensible to the touch. The tension of the eyeball is distinctly raised, especially at each of these attacks, often returning to normal during their subsidence, but finally the eyeball remains distinctly harder than normal.

On examining the interior of the eye with the ophthalmoscope, very little, if any, abnormality can be detected in the early stages, although during an attack pulsation of the arteries may be perceived. In the late stage of the disease cupping of the nerve, will generally be noticed. Usually the disease progresses until it ends in complete disorganization of the structures of the globe. The lens becomes opaque, the iris atrophies, and hæmorrhage takes place in the interior of the eyeball. Bulging of the coats of the eyeball (*staphyloma, ectasia*), especially in the neighbourhood of the ciliary body, frequently occur from the continuous increase of tension, until the eye feels and looks as if it were going to burst. Indeed, removal of the globe or its contents is often the only measure that gives the patient relief from his intense suffering.

Although these signs and symptoms resemble one another very closely so that the diagnosis is apparently attended with some difficulty, there are certain characteristics which each disease holds particularly as its own and which serve to distinguish it from other inflammatory affections. If these are given careful consideration the observer will experience little trouble in arriving at a correct diagnosis of each case as it presents itself.

The following table will be of assistance in classifying the various ocular inflammations and will show at a glance the main points in diagnosis.

Eyeball Wholly or Partially Reddened without Discomfort or Other Symptoms.	Eyeball Reddened and Uncomfortable but there is no Marked Pain.	Eye Painful and Red.
1. Subconjunctival Hemorrhage. (a) Redness localized as a deep, red, smooth, uniform patch. (b) No discharge.	1. Hyperemia of the Conjunctiva. (a) Everted lids redder and rougher. (b) Burning, smarting, itching. (c) Foreign body sensation. (d) Discharge slight. 2. Foreign Bodies in Cornea or Conjunctival Sac. (a) Constant scratching. 3. Phlyctenules in Conjunctiva. (a) Small pimples on conjunctiva surrounded by patch of blood vessels. 4. Acute and Chronic Conjunctivitis. (a) Smarting, burning and foreign body sensation. (b) Mucous, muco-purulent or purulent discharge. (c) Adherence of lids in morning. (d) Injection and swelling of conjunctiva.	1. Iritis. (a) Ciliary injection and redness. (b) Photophobia marked. (c) Lachrymation copious. (d) Tenderness. (e) Pupil contracted and sluggish to light and accommodation. 2. Glaucoma. (a) Increased tension of the globe. (b) Attacks of pain, neuralgic in character at first, later more constant. (c) Lowered vision. (d) Pupil dilated. (e) Shallow anterior chamber. (f) Hazy cornea. 3. Phlyctenules of the Cornea. (a) Disease of childhood. (b) Intense photophobia and blepharospasm. (c) Lachrymation. 4. Corneal Ulcers. (a) Loss of substance. (b) Solution of fluorescein stains ulcer green.

POTT'S PARAPLEGIA CURED BY THE PLASTER BED.

BY

J. Appleton Nutter, M.A., M.D.

N. A., aged 7 years and 4 months, has a history dating back nearly two and a half years. The disease began in the summer of 1906, when, without any trauma, she was noticed to walk peculiarly. She had had typhoid fever some six months previous, and her gait was thought to be

merely a bad habit, for which she was frequently reprimanded.

In the fall of 1906 she was found to have a kyphos between the shoulders, and soon after this she began to walk stiffly and clumsily. It was not long before she was unable to walk at all, but sat on a low chair supporting her chin in her hands. She had absolutely no pain.

In June, 1907, Dr. J. J. Ross, the family physician, asked me to see her. At that time she had a well marked angular kyphos about the 7th cervical, 1st and 2nd dorsal vertebræ, with marked spasm and rigidity of the upper spinal muscles. Her legs were very weak indeed, and when told to raise them in the air she generally did so by pulling them up by the stockings. She could not walk and had not done so for six months. There was no sensory disturbance. The knee jerks were very much increased; but the chief sign, apart from the paralysis, was a very marked ankle clonus, which could be elicited by the slightest strain on the endo-achillis. She had no Babinski sign. Her sphincter area was involved, so that when she called for the bed-pan, it could rarely be got to her in time. There was evidently pressure on the spinal cord at the seat of deformity, and this was presumably due to a tuberculous pachymeningitis with thickening, which pressed the dura against the dorsal cord.

She evidently needed rest for the spine with as much hyper-extension as could be got, and all the fresh air, sunlight and good food possible. She was put in a hammock face down, and the plaster bed which you see was applied to her back and head. After the plaster had set it was removed to dry, and for the next six months she lay comfortably in it, the whole being securely fastened to a Bradford frame.

In this way she could be moved easily, and spent most of the day-time in the sun on the back gallery. As she had a marked foot-drop, a box was always placed at her feet to support them at a right angle. Her appetite was good and her bowels regular, and her grandmother proved an unrivalled nurse. In a few weeks the legs showed a good return of power, and could be raised unaided in the air. The increased knee jerks also disappeared, but it was not until she had lain some two and a half months in the plaster bed that the ankle clonus left, never to return. She was kept quiet however three and a half months longer, and in January of this year a jury mast was applied, fixed to a plaster jacket. She was then allowed to sit up and in a few weeks to stand and so to walk. In June, 1908, a new jacket and jury mast were applied, and these are still in use. When they are worn out she will wear a light support of leather or plaster to keep the spine hyperextended, and probably by the spring she will discard all apparatus. She is now quite healthy and happy, and has had no return of the paraplegia whatever.

The paralysis of Pott's disease occurs in some six per cent. of all cases. It is most commonly found when the disease is in the dorsal vertebrae, especially the upper and middle regions, when disease is here, paralysis may be expected in 15 per cent. of cases. This may be due to the smaller calibre of the vertebral canal at this part, or to the difficulty in fixing the spine when the disease is at this level. The paralysis is seldom caused by direct pressure of the bone, as it is uncommon for even severe deformities to narrow the spinal canal to any great extent. In fact, it is more often associated with slight than with extreme deformity. The process ordinarily begins as an external pachymeningitis, causing thickened meninges begins as an external pachymeningitis, causing thickened meninges and pressure on the cord. Myelitis at times develops, followed by ascending and descending cord degeneration. The prognosis is favourable in mild cases, and even in severe ones if they can be treated early. Compression from thickened meninges can generally be relieved by rest and strong hyper-extension, but if myelitis has set in there will be irreparable cord destruction of greater or less extent. Fortunately this latter condition is not often seen, as the paralysis usually, if cured, leaves no traces behind. Paraplegia is one of the later symptoms of Pott's disease, developing generally some years after the onset. It may, however, be the first sign of the disease. The occurrence of myelitis in a young child should therefore be considered as extremely suspicious.

In general the paralysis is preceded by an exacerbation of the disease, with increase of pain. One of the first signs is an increase in knee jerks and the pressure of ankle clonus. This is followed by a spastic gait and inability to walk. Involvement of the sphincters generally indicates a fairly severe attack, and if the case gets worse sensory disturbances follow.

As before, the treatment is rest in a plaster bed or on a frame in either case, in strong hyperextension. Cases of paralysis average seven months from the beginning of treatment until the complication has disappeared. Laminectomy is not gaining in favour, and is not indicated until conservative treatment has been faithfully tried for a long period of time.

APHASIA, AUDITORY AND MOTOR, WITH RE-EDUCATION.

BY

NORMAN VINER, M.D.

Patient, S. C., 20 years of age.

Complaints.—Defective speech and hearing.

History.—Running from left ear commenced when 18 months old. At 3 years had acute illness with angina and convulsions, followed by

complete and simultaneous loss of speech and hearing. Other faculties and general intelligence remained normal and developed with years. From the sixth to ninth years would, at intervals of several months, spontaneously utter some irrelevant word. At nine years she was put at light work in a shop, as a result of which she began to make use of a few words. Having observed this, her parents placed her under the teacher of a small class. Here, she was taught to read and write Russian and Yiddish and to read Hebrew—that is, she could read but with laboured and indistinct articulation, and the writing was also very limited. She was at school for two years and since then the improvement has been very slight.

Present Condition.—General physical condition and development good. Mental condition normal; intelligence good, except in so far as its development has been limited by her ailment. Patient is right-handed. All systems, except nervous, normal.

Nervous System.—Eyes, touch, taste, smell, normal. Left ear shows complete disappearance of drum-membrane, with presence of active, though limited, suppuration. Right ear shows marked retraction of drum. Left ear totally deaf except to low-pitch tuning-fork, which is barely recognized by long conduction. Right ear cannot make out tuning-forks, but can hear loud vocal and other sounds at some distance, and watch next to ear. Right ear shows aerial better than bony conduction. In short there is complete nerve deafness of left ear and partial of right. In regard to cerebral conditions, patient performs all ordinary actions in a normal manner. Is able to indicate any desire by gesture, or speech, when within the limits of her vocabulary. Can imitate any action, *i.e.*, there is no amimia or paramimia. Appreciates music, therefore there is no amusia. Can read in three languages, but understands only the words she is familiar with. Can copy, write to dictation, or name an article or desire in writing, and can read and understand what she has written, all subject again to the above limitation. When her speech is misunderstood, she never voluntarily expresses herself in writing. In short, there is no visual aphasia, no agraphia, and no paragraphia, especially of words she is familiar with. Hearing is very limited, both actually and in the sense of understanding what she hears. It is necessary to speak very loudly and she will repeat only the words she is familiar with: other words she will replace by words she knows nearest in sound to those uttered. In fine, there is auditory aphasia and paraphasia to some extent.

Motor speech is present, but her vocabulary is very limited, and her

articulation very defective, but this is not due to anarthria, as the muscles of speech are not involved. There is rarely any tendency to miscall anything when speaking voluntarily, so that there is practically no paraphemia. When she errs in any of the above functions, she seems to realize it.

There is no muscular paresis or spasm, no disturbance of motion, sensation, co-ordinaation, reflexes, or electrical reaction. The cranial nerves with the exception of the 8th pair are normal. Subjectively there are no sensations, excepting occasional noises in the head, which may be due to the condition of the ears.

Diagnosis.—We have to differentiate here between paralysis of the 8th nerves, bulbar palsy, pseudo-bulbar palsy, thrombosis, apoplexy, embolus, involvement of island of Reil, cortical encephalitis due to some acute condition as meningitis, trauma, and abscess of the temporal lobe of the left brain.

Paralysis of 8th pair is ruled out by the fact that deafness is not total, and that dumbness was simultaneous with deafness instead of being preceded by a period of paraphemia. Bulbar palsy is excluded by above reasons, plus the fact that no other centres were involved. Pseudo-bulbar palsy is excluded for reasons similar to above, both bulbar and pseudo-bulbar palsy would be associated with paralysis of the muscles of articulation, which in this patient are normal.

Thrombosis is excluded by age of patient, febrile onset and character of lesion. Both in this, in apoplexy and in embolism, the lesion would have to pick out cortical areas in a most remarkable manner without involving a single fibre outside the auditory and motor centres, conditions which are practically unheard of. Were the lesion caused by these conditions anywhere beneath the cortex, you would get subcortical aphasia, which would not cause total or instant dumbness and there would be bilateral hemiplegia or monoplegia, none of which conditions exist. In addition, one would expect a diseased heart to account for embolism.

Involvement of island of Reil would not have caused instant deafness and certainly not instant dumbness: there would have been paraphemia. Besides, it is hard to account for an acute condition, not involving other parts as well as the island: cortical encephalitis of an acute nature would have left some other indications in the way of paralysis, spasms, paræsthesias, etc. Trauma—of this there is no history, nor external indication. Abscess of the left temporal lobe is no doubt the condition here, and it is due to extension of inflammation from the left ear. In addition there was probably some direct involvement of Broca's area, for mere involvement of the auditory centre in the temporal lobe would have been fol-

lowed not by instant deafness, but by a period of paraphemia first.

Her present condition following the total deafness and dumbness at the beginning indicates that there has been a re-education of the right hemisphere to take on the functions of the left. In this connexion an interesting question arises. Since her visual and graphic centres were not involved with re-education, would these continue developing on the left side, while motor and auditory functions were being built up on the right, or are all the centres of necessity so closely connected that they must all be on the same side of the brain? Unfortunately this question would involve considerations altogether beyond the scope and limits of a mere case report and must therefore, for the time being, be abandoned.

Prognosis.—Prospects of further improvement rather poor on account of patient's age.

Treatment.—Re-education along lines already adopted, but in much greater detail. Patient should be taught letter by letter, syllable by syllable, word by word, everything being patiently shown or repeated over and over again. Things and their uses should be indicated and then put into words, patient being encouraged to repeat. The other senses should be called into play to the utmost to help along the lagging ones. In addition the ears should be treated until all signs of active disease are eradicated, and an instrument now used, in the nature of a portable telephone, should be carried by the patient to help the defective hearing.

MEDICINE IN CANADA.

BY

M. C. CHARLTON.

III.

In the last article reference was made to a valuable paper "On the Medical Statistics of Lower Canada," by Dr. Kelly. As far as we know he was one of the first to undertake such an investigation. He obtained his information chiefly from the journals of the House of Assembly, and not from the Parochial Registers in manuscript, which had been carefully kept by the clergy. By the census of 1831, the total number of persons in the province was about 554,321. Deaf and dumb, one in 1,244, and the proportion of insane was one in 549. In trying to trace the diseases which caused such an increase of mortality during the summer months at Quebec, he visited the Hotel-Dieu and the General Hospital. Dr. Kelly was, however, disappointed in obtaining the information he sought, as persons suffering from infectious diseases were not admitted.

He next visited the Emigrant Hospital, the records had, however, been so badly kept in the early days that he could obtain but little information. Most of the mortality among the immigrants appeared to be from fever and dysentery. Later, smallpox and cholera carried off hundreds.

Through the kindness of Dr. Skey, Dr. Kelly obtained access to the medical records of the army. And he says: "As the information they contain is most accurate, and as the health of the troops in each year bears a relation to the general health of the province, their records are very valuable in assisting us to form an opinion respecting the diseases of the different seasons. The following table shows the hospital admissions and deaths in the army in Lower Canada, during each quarter of the year, from 1820 to 1827:—

1820 to 1827	Fevers		Pneumonia		Rheumatism		Phthisis and Hemoptysis		Catarrh Acute and Chronic		Dysentery and Diarrhœa		Other Diseases		Total	
	Admitted	Died	Admitted	Died	Admitted	Died	Admitted	Died	Admitted	Died	Admitted	Died	Admitted	Died	Admitted	Died
1st Quarter	332	10	246	5	101	0	41	20	349	5	109	1	1808	15	2986	56
2nd "	747	3	328	14	163	0	39	27	365	3	176	0	2034	11	3852	58
3rd "	1051	9	189	9	158	0	21	17	245	1	659	1	3057	23	5380	60
4th "	539	13	216	2	128	0	29	10	274	1	251	0	2214	17	3651	43
Total ...	2669	35	979	30	550	0	130	74	1233	10	1195	2	9113	66	15869	217

"The greatest number of deaths from diseases not specified were 14 from apoplexy; 8 from smallpox; 6 from enterites; 6 from dropsies; 6 from wounds and accidents, and 4 from atrophia." Then he goes on to say that the mortality from pneumonia was greater in the spring and summer than in the winter. In a second table showing the different diseases in all the military hospitals in Canada from 1810 to 1822, we find that the deaths from consumption bore a much smaller proportion to the whole mortality, than from 1820 to 1827. His further remarks on consumption are worthy of note, as this is probably the first instance of any statistics of the disease being recorded.

"The deaths from phthisis in the army in Canada from 1820 to 1831 was 33 per cent. of the whole mortality. In the first period the amount is under 10 per cent., in the last 34. Excluding from the former the returns of 1812 to 1815, when the war and its consequences added so much to the whole mortality. The proportion of deaths from phthisis is still only 12.6 per cent. As it seems very difficult to account for such a disparity in the proportion of deaths from phthisis in men under the same circumstances, we might suspect that it arose from diseases of the

chest not being so accurately distinguished formerly as they had been of late. But, if any error in this respect existed, it would, most probably, be rather in applying the name of consumption to diseases which do not strictly come under that head than in withholding it, and so far would tend to lessen rather than increase the disparity.

If, in order to avoid any error which might arise from this cause, the deaths from all diseases of the chest in both periods are compared, they are found in the first to be 29.2 per cent. of the whole, but deducting the period of war, as before, 43.5 per cent. Thus, whatever the cause may be, the deaths from pulmonary disease appear to have increased." In Dr. Kelly's closing remarks he deplores the high death rate in the towns of Lower Canada. In what condition then were these towns? The city of Quebec was considered healthy and but little attention was paid to hygienic matters. Nevertheless, when a comparison was made between the high death rate in the town and that of other places, this illusion was dispelled, and with the dread of cholera and small-pox before them, the authorities began to pay more attention to hygiene. The public sewers were in such a disgraceful state that some of the houses in the principal streets were at times scarcely inhabitable. In the lower town matters were worse, as many of the sewers from the upper part emptied into the streets of the lower town in a most offensive way. The streets were disgraceful, there was but little lighting, and no general system of police. There were no night police and murderous attacks frequently took place—so much so, that at last some of the citizens formed themselves into a band and patrolled the streets at night, until matters were in a better state.

The dread of epidemics roused the people to the true state of affairs, and they demanded that the streets be paved and kept in a cleanly manner and that a better system of drainage be applied. They also asked that water pipes be laid through the town. "If Montreal could have pipes, why not they? The cause no longer held good that the severity of the cold was such as to prevent this being done."

Hygienic matters in Montreal, were about the same as in Quebec. The same ill-paved streets and bad drainage. As regards a supply of water Montreal was better off than Quebec, for as early as 1801 the first water pipes were laid. These pipes, when taken up years later, were found to be in good preservation. They were made of spruce logs about six feet in length; the ends of the logs were so cut as to be wedged into the larger end of the next log. By 1839, Montreal had one of the best water supplies of any city on the continent. Some of these pipes have lately been presented to the Hygiene Museum of the Medical Faculty of McGill

University. They were dug up during the widening of St. Antoine street.

In 1842 a new system of drainage was commenced. The opening up of the old drains greatly increased the city's death rate at the time. After the laying of the new drains, the city was thought to be nearly perfect, for we read: "The city is now a city of splendid cleanliness, vying ing with those in America and Europe." They must have had poor ideas in those days of what perfection of cleanliness meant, for Montreal never had any claim to rank in that respect with the cities of the United States, which have always been models of cleanliness.

In 1815, part of St. Paul street was lighted by lamps; by the end of the year the whole street was thus lighted, and Notre Dame street soon emulated the example of its neighbour. It was not, however, until 1836 that the streets were lighted by gas.

These sanitary measures were only brought about after the most strenuous effort of the medical profession. They had a constant battle with the authorities about the drainage and cleanliness of the streets. If more attention had been paid to sanitary matters, the loss of life from the epidemics would not have been so heavy. The greatest of these cholera epidemics commenced in 1832 and lasted until 1854.

The epidemics commenced either in June or July, and ended, with one exception, in August. That of 1832, as an epidemic, lasted till September 15. It was by far the most fatal of all; the mortality in Montreal was 1,895, and in 1834 it was only 912. The deaths in 1832 being more than twice that of the second.

The Board of Health of Quebec, excluding, we suppose, the immigrants, reckoned the mortality in the two years thus:—

In 1832	1,607
In 1834	1,187

The authorities were not unprepared for the advent of cholera. During the winter of 1831-2, a severe epidemic of cholera had broken out in England. The home government had therefore warned the provincial executive that with the opening of navigation the cholera would certainly be brought to their shores. Money was at once voted by the provincial executive, and an island thirty miles below Quebec (Grosse Isle), was set apart by them to be used as a quarantine station. By the twenty-ninth of May, a number of temporary buildings were put up to be used as hospitals, and the island placed under military command.

The Canadians awaited with gloomy forebodings the arrival of the first ship of the year. Their feelings were still further depressed by an

unusually cold and damp spring. These gloomy forebodings were alas! but too fully realized. On June the 8th, the ship "Carrick" arrived from Dublin with 133 passengers, 59 of whom had died from the cholera on the passage. Strange to say, that before any of the passengers from the "Carrick" could have possibly reached Quebec, the plague had already broken out there on the 9th, and on the 10th appeared in Montreal.

SOME PRACTICAL CONSIDERATIONS IN DEALING WITH PULMONARY TUBERCULOSIS.

BY

J. H. ELLIOTT, M.B., Toronto.

When the Committee in charge of this Tuberculosis Exhibition, did me the great honour of extending an invitation to give an address this evening I had considerable difficulty in deciding upon what phase of the tuberculosis problem I should speak. The subject is a very broad one, and there is a wealth of material available upon which to base an address. I have thought it wise not to speak upon the purely medical aspect of the disease, nor in a technical manner to deal with some of the many phases of pathology and treatment, but rather to say in a few words something of the extent of tuberculosis in Canada, and to discuss some of the methods available in dealing with the disease, endeavouring as far as possible to confine the latter portion of my remarks to some of those questions constantly arising, which have to be met daily in dealing with tuberculosis patients and their families.

A great Tuberculosis Exhibition in Montreal makes a further step forward in efforts being made in Canada to combat tuberculosis. Your local association has been doing good work amongst the tuberculous poor of the city, a work with far reaching effects, for it necessarily has exerted its influence amongst the well-to-do, and many lessons have been learned directly and indirectly. The good done by such an association is incalculable, and you are to be congratulated upon the effort you are now making to create further interest in the work you have in hand. The cities are naturally the leaders in all antituberculosis work. It is amongst the poor of the cities that the ravages of the disease are most marked, and here the most effective work can be done.

In many of our smaller towns, and in country districts there are no poor consumptives; in others the poor can be counted on the fingers of one's hands, and the problem confronting us there is entirely different to that presented in a large city with its congested districts and large pauper populations.

Tuberculosis in Canada.

Let us consider for a moment the incidence of tuberculosis among our Canadian people.

The mortality statistics of the Dominion census form the only source of information as to the deaths from tuberculosis throughout Canada. Some of the Provinces have registration but the systems are not uniform, consequently we must rely upon the census for our information, as this gives no absolute uniformity. The last census was taken in 1901:—

DEATHS FROM TUBERCULOSIS BY PROVINCES.

Province	Deaths		Deaths per 100,000 pop.	Total Population
	Male	Female		
British Columbia	171	115	160	178,657
Manitoba	167	215	149	255,211
New Brunswick	266	273	163	331,120
Nova Scotia	451	460	198	459,574
Ontario	1593	1951	162	2,182,947
Prince Edward Island	105	119	217	103,259
Quebec	1391	1982	205	1,648,898
Territories	187	213	252	158,940
Unorganized Territories	33	17	95	52,709
All Canada	4364	5345	180	5,371,315

This table shows that in 1901 there were 180 deaths from tuberculosis per 100,000 population. In England and Wales for the same period the death rate was the same 180.5 per 100,000. In the United States (registration area) it was 196·9 per 100,000 and in the State of Massachusetts 234.5 per 100,000.

Estimate of Deaths from Tuberculosis, 1907.

Since the census of 1901 there has been a marked increase in our population. Hence, these figures of total deaths do not give us an adequate picture of the present yearly number of deaths from tuberculosis. In 1906 a special census was taken of Manitoba, Saskatchewan and Alberta. This showed an increase in population of 745,329 over the census of 1901. In a recent Provincial report there is an official estimate of an increase of 200,000 in Ontario in the same period. There has also been an increase in British Columbia and Quebec, justifying an estimate of 6,500,000 population for the Dominion in 1907, an increase of 20 per cent.

The above table shows deaths from tuberculosis (all forms) in 1901 to be 9,709; an increase of twenty per cent. would make the estimated deaths from tuberculosis in 1907, 11,657.

Now let us look at it from another aspect. The total number of deaths from all causes in Canada in 1901 was 81,201; of these 9,709 were registered as due to tuberculosis. One death in 8.36 due to tuberculosis or 119.6 deaths in each 1,000 from all causes.

In England for the same year there were 106.7 deaths from tuberculosis per 1,000 of total deaths, in the United States (registration area) 118.9, and in Massachusetts 138.2.

If the proportion of deaths due to tuberculosis in 1901 continues, it means that of our present population of 6,500,000, over 777,500 are destined ultimately to die of tuberculosis.

Yet we speak of tuberculosis being a communicable, a preventible disease,—a disease curable in its earlier stages.

Surely if these figures, these appalling figures, cause us to realize the extent of the ravages of this disease in Canada, we must endeavour to do something to lessen its prevalence, and to save our population from further infection.

The occurrence of the various forms of tuberculosis according to the 1901 census was as follows:

Tuberculosis of Larynx	76
" Lungs	8248
" Meninges	266
" Abdomen	269
" Spine	56
" Knee	8
" Glands	172
" Other organs	61
Cold abscess, etc.	29
General Tuberculosis	524
Total deaths, all forms	9709

The problem before us is, What shall be done to lessen this enormous death rate? I do not propose to outline a comprehensive plan of attack. Let me but say that the physician, the public, the municipality, the Provincial and Federal authorities must work shoulder to shoulder. Koch's discovery of the tubercle bacillus has placed us in a position to know how to fight against the disease, and we can now lay down certain rules and regulations whereby its spreading may be materially lessened. More and more are we learning to recognize that for effectual measures, government aid must be invoked, and without the full co-operation of the authorities charged with the care of the public health little headway can be made.

We are living in a country where responsible government has been established; our municipal officers, our provincial and federal law makers and administrators are responsible to the people, and though in sudden

emergencies our Governments must act without an opportunity of consulting the people, we must recognize that in dealing with a great problem such as the control of tuberculosis, little action will be taken until it is shown that the people desire those expenditures made which will be necessary. There can be little doubt that our Provincees will take the question up at any time that the people demand it, but as yet only a few voices have been lifted here and there, leaving us still much work to do in educating our citizens generally to the crying need for action. Let us once get our people aroused, not only to the need for action, but to the great possibilities of concerted action, and we shall have no difficulty in securing the active aid and co-operation of the forces of government. This is a most important part of the work which lies before us.

There are certain general principles to be followed everywhere in dealing with tuberculosis: yet with varying local conditions the details must necessarily differ; climatic conditions, housing, density of population, average income and a host of other factors enter at once into consideration, making it essential that in any attempt to deal thoroughly with the problem, local conditions must be made the subject of exhaustive study in order to secure the best results with a minimum of expenditure. As I have mentioned, the problem in sparsely settled and rural municipalities is quite different to that in the cities.

Much can be done for individuals by individual effort, but to secure any marked lessening of deaths from the disease we must have the co-operation of our Governments, and a large expenditure of money is requisite. We can hope to do but little unless funds are forthcoming from private and public sources.

We must not deceive ourselves, and think that when we caring for a few tuberculosis patients in a sanatorium or dispensary that we are on the way to meet the disease. It is a much broader question than this. These institutions are weapons in our armament of defence and offence against the foe. They are integral parts of the equipment of an *arsenal* which should be at our disposal.

But others who have addressed you in the course of this Exhibition have discussed the broad lines of attack and defence. I shall endeavour to confine my further remarks principally to the question of the physician as he deals with the individual patient, and the relation of the patient to his physician.

As one travels from Toronto to Montreal, he passes through a country of rich farm land along the north shore of Lake Ontario. In early summer the fields of grain through which one passes for many miles,

are not fields of waving green, but fields of sulphur yellow. Many a farmer has tried faithfully and honestly to eradicate the pest of mustard from his farm and has almost succeeded, only to find the following year that his fields are again infested, either through dirty seed grain or spread from the neighboring farm. By certain methods of treating these fields our Department of Agriculture has demonstrated to the farmer how he may clean his farm. Yet what incentive is there for him to do unless his neighbor does likewise, and together they use only clean grain for seeding in subsequent years. In the presence of infected farms in the neighborhood, and the reprehensible practice of some farmers selling dirty seed grain as clean, a farmer finds it almost impossible to keep his farm clear of this pest. Also, how often have we noticed that when a few roots of mustard have appeared on a farm, it is an easy matter to keep the farm clean if the neighboring farms are clean, but let the weeds alone for a year or two and the farmer is almost helpless in the face of the problem confronting him.

So to is it with the tuberculosis plant when it multiples and reproduces itself in the human system. If we discover it early while it is yet localized we can in most instances prevent its spread, and even eradicate it. But to be successful we must search for it where there is reason to suspect its presence, and not wait until one passing the patient in a railway train can make the diagnosis. When the disease is far advanced and recognizable at a glance, palliative measures are in most instances all that can be instituted.

Again, even as the treatment of mustard fields, and the avoidance of sowing dirty seed grain will clean up a farm and prevent the spread of a nuisance, so will tuberculosis be eradicated if we treat properly all those who suffer with the disease, and so instruct them that they will not carry infection to others who as yet are healthy and free of disease.

Patient scientific investigation has acquainted us with what we believe to be the sources of infection. Knowing the sources of infection, rules and regulations may be formulated whereby spread from known sources may be prevented, and looking at the question superficially it seems an easy one. King Edward, who is deeply interested in the prevention of tuberculosis, has said, and the words ring in our ears again and again, "If preventible, why not prevented?" A very long answer is necessary to fully explain why; we may say we know how to do it, what means to employ, yet such measures as we would suggest may not be practicable and time is requisite to a fulfilment of our work. Some would in answer say, "apathy," and unfortunately we must recognize that this answer conveys much of the truth.

We know that the tubercle bacillus is the cause of the disease; we have been unable to find any evidence of its propagation in nature outside the body of man or animals. Tuberculosis is then a disease which spreads only from one already attacked, and the keynote of prevention is the recognition of all cases of open tuberculosis, that is, those with bacillus-laden discharges.

The question of infection of man from animals cannot be overlooked; all pathologists acknowledge such infections. True indeed, one great leader in the pathology of tuberculosis, Koch, insists that he has yet to be convinced that such infections are frequent, or that when they do occur, are severe, yet the majority of such workers seem inclined at present to consider bovine sources not to be a negligible quantity, and until we know more positively the approximate percentage of such infections in man they insist that we take every possible precaution against the transmission of bovine infection to man, and more particularly to children. In any case we are assured that even with the acknowledgment of such transmission man must still be considered the source of infection in an overwhelming proportion of all cases. Many estimates have been offered of the percentage of tuberculous affections in man due to bovine sources but they are founded either on too small a number of investigations or upon observations not controlled by careful bacteriological research and need not be here quoted.

It is evident then, that to be successful in our work we must leave no stone unturned to locate all cases of open tuberculosis and to see that proper precautions regarding the disposal of bacillus-laden discharges are carried out.

Amongst the well-to-do the physician rarely has difficulty in securing obedience on the part of the patient to any suggestions made, but amongst the poor sanitary conditions are not so readily secured, and on this account it is most important that there be a system whereby such cases may be reported to the local sanitary authority who will see that sanitary supplies are provided for the patient, and will also institute nursing and medical supervision where the patient is not in a position to procure it himself. It is in this work that the physician, the municipality and local philanthropic organizations can work in accord, and no one need feel, that in instituting notification the patient will be subjected to publicity. The municipality must undertake its share of responsibility in the care of those unfortunate enough to be unable to provide for themselves, while upon the physician alone should devolve the task of rendering all patients under his observation amongst the better classes innocuous to those about them.

This brings up another question.—Can proper precautions be taken without making the patient and his immediate family being made aware of the nature of his disease? One must answer most emphatically, "No." There is, or was, a very prevalent belief that once a patient was told the nature of his disease, he would straighway lose heart and begin to fail, that it was very wrong to injure the patient's sensitive nature by acquainting him with the facts before the time that it would became evident to him himself. It has been necessary for me to make known to hundreds of patients a diag nosis of tuberculosis, yet I cannot recall an instance where harm has resulted. Necessarily the truth must be told in as kindly a manner as possible, and the patient must be made aware of the possibilities of treatment, where he will co-operate with the physician. Harm can result in simply telling a patient he has consumption—this must be qualified by careful statements regarding the nature of the disease and its own inherency to become closed or quiescent, and, of course, the physician will then take the time necessary to give the patient an intelligent grasp of the task before him. A patient cannot be dismissed with a prescription for medicine and a few words of advice. A careful talk is essential and the information necessary to the patient cannot be given in a few moments—time must be taken and the patient's daily routine carefully, outlined, as well as full and definite instructions for the disposal of the sputum and avoidance of infection.

Fear of Infection.

In giving these instructions we must emphasize the danger of careless habits in sputum disposal and in soiling articles with mouth secretions and excretions. I need not go into the details of this, the subject has been thoroughly discussed again and again, and the rules are simple. But I do wish to say a word on behalf of the careful patient. It is not sufficient to alarm the patient and his friends as to the damages of infection. In every instance it is only due to the patient that we assure him and his friends that the possibilities of danger are only present where these precautions are not observed, and that the tuberculous person need be no menace to those about him. Our profession can do much to make the lot of the consumptive a happier one, and can relieve many unwarranted fears by judicious counsel and advice. I have seen a young man refused a bed in his own home, his father a wealthy man, because of inordinate fear of infection of younger members of the family. Let us cause the careless patient to feel he is a danger to the community, but let us keep the careful, conscientious one and encourage him

in his endeavours, and at the same time cause him to be appreciated and cared for by those about him. Let them feel that in assisting him and making his burdens lighter, they are not exposing themselves, but are associated in the work of his recovery.

The Communication of Tuberculosis.

While speaking of the possibilities of the communication of tuberculosis from man to man, it would not be amiss to refer to some recent important and interesting communications on the excretions of bacilli from the body. Investigations made at the Phipps Institute have shown that in advanced pulmonary tuberculosis bacilli are present in the urine in a large proportion of cases, quite irrespective of the presence or absence of tuberculosis of the genito-urinary tract. Inoculation of the urine into guinea pigs showed tubercle bacilli in the urine in 82.5 per cent. of their cases of pulmonary tuberculosis.

Willson and Rosenberger, in their studies at the Philadelphia General Hospital, have shown that in the majority of cases bacilli were demonstrable in both urine and fæces when present in sputum; and in every case of pulmonary and genito-urinary tuberculosis with bacilli present in sputum or urine, they never failed to find them also in the fæces. They were also found in the fæces in many cases of glandular and other forms of localized tuberculosis (bones, joints, etc.,) and in acute miliary tuberculosis. They were found in the urine and bowel discharges in incipient tuberculosis of the lungs, showing the infectiousness of excreta early in the disease. In inoculated animals, infected by feeding as well as by hypodemic and intraperitoneal injection, the bacilli were demonstrated in the fæces and urine within the first week. The bacilli discharged in the excreta were found to live in water for over a year. Their presence in excreta has an important bearing on the infectiousness of sewage and of contaminated water supplies.

In connection with this, mention should be made of a paper by Sedgwick and MacNutt. They have made an exhaustive study of the water supplies and vital statistics of three New England cities, two of which had begun to supply their citizens with water much purer than that previously furnished. Hazen has stated that for every death from typhoid fever avoided by the purification of polluted water supplies, two or three deaths are avoided from other causes. These investigators believe that among these "other causes" pulmonary tuberculosis holds an important place. Pneumonia and infant mortality seem also to be included. They are satisfied that "polluted public water supplies ap-

pear to increase the general mortality of communities from tuberculosis; pure water supplies to diminish that mortality." In the city of Hamburg, though the tuberculosis mortality had been declining for years, it is noted that after the installation of sand filters it continued to decline at a somewhat greater rate. No statement is ventured as to whether the decline may be due to diminished infection or to increased vital resistance or to a co-operation of these two factors.

The finding of bacilli in human excreta in cases of closed tuberculosis is corroborated by similar investigations in animals. If a series of cattle which had reacted to the tuberculin test, but were apparently healthy, Schrœder found that 40 per cent. pass tubercle bacilli per rectum with their fæces, and with observations extending over two years the number had risen to over 80 per cent.

We must then recognize in addition to the sputum and the discharges from tuberculous abscesses and sinuses being sources of infection, that the excreta of patients must also be considered. Yet, in the ordinary household, the usual method of disposal allows little chance of infection, so that in the great majority of instances we must consider the expectoration as the dangerous source of contagion, and instruct our patients accordingly. We cannot be too explicit in explaining that anything coming in contact with the sputum and the mouth may be infected, and should be treated as it were so. These objects must be mentioned in detail to the patient—the fork, spoon, and cup, table napkin, handkerchief, possibly the pollow-cover and bed-sheet, if coughed against, and a host of other objects which will readily occur to the physician and need not be mentioned here.

Importance of Early Recognition.

Inasmuch as of incipient cases under proper treatment, seventy-five per cent. will recover, of moderately advanced fifteen per cent. may recover, and of far advanced cases one per cent. may recover, it is a simple mathematical calculation to estimate what it means to a patient to place him under treatment as early as possible.

When a patient presents himself with symptoms of pulmonary tuberculosis a most careful examination must be made in an endeavour to establish a diagnosis. If the physician cannot arrive at a diagnosis positive or otherwise, he should call in consultation a brother practitioner skilled in physical examination and if now in presence of suggestive symptoms a definite conclusion cannot be arrived at, a short wait may be advisable, followed by another examination. In case of uncertainty we have an almost infallable test in the subcutaneous administration of tuberculin.

Its reliability has been amply confirmed by investigations in animals in all countries. I shall refer only to the very conclusive evidence of the Director of the Bureau of Animal Industry, Washington. Of 23,869 animals which have been reacted and have subsequently been slaughtered, 98.81 per cent. showed tuberculous lesions at autopsy. Can any test be more conclusive or more accurate than this?

Just a word of caution—let no physician use the tuberculin test without a wholesome respect for the potency of the drug. A large test dose given to a weak person may produce a very unpleasant reaction, and we have no right to use the test until other means of diagnosis have been exhausted.

If we discover a case of tuberculosis in a family, it is important that the other members of the family be examined for evidence of disease. In this way we may find disease while in the incipient stages and while recovery may be secured; in other cases evidence of infection may be recognized before symptoms appear, and by careful living the patient may avoid a future prolonged illness. In addition to the family, others who may unwittingly have been exposed to infection owing to ignorance on the part of the patient of the infective nature of his sputum, should be subjected to examination. I have known two young men to develop tuberculosis when working in an office on a set of books which had been kept by another man who, not knowing he had tuberculosis, coughed over the books through the day as he was working on them. Other instances could be given of infection in offices and workshops.

The diagnosis being made, the next important point is prompt treatment. No time is to be lost. There must be a thorough understanding between patient and physician to secure good results. It is to be a business partnership, the physician being the expert in the business whose advice regarding all matters is to be sought and carefully followed. The patient must confide everything to him and the physician must be prepared to offer every encouragement possible. He should give the best prognosis consistent with his findings, at the same time giving the patient to understand that the prognosis is only relative to his carrying out strictly the injunctions of his adviser. These must then be given in detail: for many patients it will be found advisable to give written instructions, more especially as to the daily routine to be followed, specifying definitely the amount of walking or other exercise, if allowed, the hours of absolute rest and general instructions as to extra lunches and meals. No half-way measures are allowable. The physician must be firm in his demands upon the patient, who on his part must recognize that the cut-

ting out of his usual pleasures and enjoyments will be his sacrifice in an endeavour to get well.

One of the first questions to decide will be: Shall the patient be treated at home. I cannot undertake a thorough discussion of this question; so many considerations are present in each individual case, and, as in other points of treatment, each case must be considered by itself, for in individualizing lies the secret of pulmonary tuberculosis. We must consider the patient's financial condition, whether well-to-do, of moderate means, or poor, his physical condition, whether in an early, moderately advanced, or advanced stage, whether disease is active or quiescent.

It is rarely advisable to send a patient away from home with a high daily rise of temperature—rather treat him at home at absolute rest in the fresh air until the activity has somewhat subsided. This generalization may be departed from if there is a suitable hospital or sanatorium close at hand, or in the care of a poor man with poor home surroundings, if admission to a local institution can be arranged.

Speaking generally, the wealthy incipient case should be sent away either to a sanatorium or some well recognized health resort, and placed under the care of an expert. Here he is in a community where all are living the out of door life and under supervision. Even though his own home is in the country, it is only rarely advisable that he be treated there because of the difficulty, particularly in the winter time, of having him spend the whole day on the veranda, while the other members of the household are spending the day as usual, much of it indoors.

The wealthy patient with moderately advanced disease is preferably treated at a sanatorium or under close supervision in a health resort.

With far advanced disease and a hopeless outlook as far as recovery is concerned much can be done for the wealthy patient at home, and he should be cared for at home, if home and the presence of his immediate family may mean much to him. A patient with few family ties may prefer to spend his remaining days in some mild equable climate where he may live constantly out of doors in comparative comfort.

For the patient with moderate means much the same advice may be given as for the wealthy; he, however, is not in the same position to face a long period of expense away from home, and this must be taken into consideration, particularly if his income ceases with his leaving home. In the far advanced stage it is rarely advisable that he go away. It is better that he use his money as far as possible for his comfort at home.

In dealing with the poor patient we have one greatest problem. It is difficult in any stage of the disease to get our ideal results while they re-

main in their homes. The only satisfactory solution is the provision of hospitals, sanatoriums, day and night camps for their treatment, removing them from their homes, where, often ignorant and careless, each may be a focus for dissemination of the disease. A large outlay is requisite to secure these provisions for the poor of a great city. We can scarcely yet hope to make much progress until this is done. We can in the meantime do all in our power by a campaign of education, through dispensaries and visiting nurses, to awaken the poor to the meaning of the earlier symptoms of the disease and endeavor to improve sanitary conditions about those patients coming to our notice, at the same time making the family thoroughly familiar with approved methods of prophylaxis and treatment in the home.

We must recognize then that the vast majority of our patients must be cared for at home. One of the first essentials for treatment everywhere is that as much as possible of the twenty-four hours be spent in the open air. We may divide our home-treated cases into two general classes. (1) Those whose whole day can be given to treatment. (2) Those who must continue at work. What shall we advise for day quarters and night quarters in the fresh air? Let us if possible arrange for out-of-door living in preference to the well ventilated room. A well arranged balcony, on which the patient may be screened from the prevailing wind offers most advantages. This is preferably upstairs, convenient to the bath room and opening off or near the patient's dressing room, if an ambulant case. Such a balcony may be built for a small sum, or a larger sum may be spent in a desire for space and good appearance. Where little money can be spent it need be little larger than the bed itself, and protected by canvas, need not cost many dollars.

Where this is not provided, and the patient is unable to have it built —the landlord may object—there may be built a veranda or porch on the ground floor which, by wooden or canvas partitions, may be made into sleeping quarters. I have seen a patient arrange this, utilizing some old stone sash, at an outlay of about three dollars.

Where a veranda or balcony is not available there may be space about the house for a tent, or a lean-to may be built, large enough for sleeping quarters and for occupation on stormy days.

Failing this, we must use a room in the house, one with good light and air space, and we may utilize one of the various forms of window tents or sleeping canopy recently devised by Knopf, Denison and others.

There can be no doubt that the amount of work which can safely be done by a cured consumptive, or by a quiescent case still under treatment, is much augmented by sleeping out of doors at night. At the

present time I have under my care quiescent cases of both 'open' and 'closed' pulmonary tuberculosis who are working daily, and who, I firmly believe, are able to keep at work, and in apparent good health only through the fact that they spend ten hours each night out of doors in addition to what time they are able to be out during the rest of the twenty-four hours. Practically all are at indoor work—in offices, warehouses, house work and similar occupations. It is for the working patient in particular that out-of-door sleeping is advisable.

The patient who is spending his whole day out of doors requires that his quarters be made as attractive as his circumstances allow, in order that he may derive a maximum of improvement from his treatment.

We must never forget the psychic element in our treatment. Nutrition is seriously affected in conditions of despondency, discouragement, apathy and other morbid states of mind, and unless this is overcome we can look for little improvement in our patient. The happy, earnest patient is the one who responds most readily to our measures, and we must ever bear in mind that our own energy, hopefulness and convictions of recovery will have a marked influence on the patient, while on the other hand he will be on the watch for any sign of discouragement, or fear on our part which will only result in corresponding depression in him, with, further, a depression of digestion assimilation and other vital functions. The cheerful encouraging physician is a tower of strength and comfort to his tuberculosis patients in their prolonged fight for health.

REST AND EXERCISE.

Amongst the people in general we find a fairly fixed belief that the tuberculosis patient should exercise to the extent of his powers, and that it is only in this way that he can become strong. On the other hand, it is generally believed that rest in bed is weakening, and when we advise a month or so to be spent in bed we meet with strong opposition on the ground that the patient will surely lose strength. Neither of these beliefs has any foundation in fact. We have no better therapeutic measure for reduction of temperature in tuberculosis than absolute rest in bed, and as a rule a marked gain in weight results.

Rest must be insisted upon while there is a daily rise in temperature of one degree or more, but with improvement in nutrition, lessening of cough and return of temperature to normal it may be wise to institute walking and other mild forms of muscular work which will not induce excitement. But these must always be begun in a very moderate way, and increased gradually, always under the physician's watchful care and with accurate thermometric observations. I think there can be no doubt

of the great therapeutic value of carefully supervised exercise in the quiescent case. On the other hand, there is no folly so great as to allow or to advise exercise with a marked daily rise of temperature.

The dietary must be abundant while body weight is below normal, and while gaining in weight we often see a patient eating with relish quantities of food greater than that required by a hard working man. It is during this time that we desire to maintain what is usually spoken of as overfeeding. With weight reaching normal and a cessation of daily waste through fever and expectoration the appetite naturally becomes more normal, and there should be no desire on our part to force the patient, but only that he will take sufficient of a mixed dietary to maintain his gain.

Then, too, there can be no fixed dietary for the tuberculosis patient. Each patient is an individual with his likes and dislikes, and the physician must direct accordingly. There is perhaps no more difficult task in a physician's work than the arranging of a suitable diet for one with idiosyncrasies towards food and for those with gastric disturbances. The problem will tax the resources and patience of any man at times, but the careful physician will realize how much of the success he hopes for depends upon digestion and assimilation.

It is impossible to discuss the question of medicinal treatment. Judicious medication can do much good. Careless or routine administration of medicine is sure to produce harmful results. Our treatment is constitutional and symptomatic, requiring the physician's careful attention.

We are again in an era of specific medication for tuberculosis in practically all of its forms. No physician to-day can afford to be lacking in a knowledge of the proprietics and the administration of the tuberculins. Tuberculin, speaking generally of the various preparations from the tubercle-bacillus and its products, is a most powerful substance. We have only to remember that in a susceptible individual as small a dose as 3 one-millionths of a grain may induce high temperature headache and general malaise for 24 to 72 hours.

In America, Trudeau and his circle of workers at Saranac Lake have been using it persistently and consistently since it was first brought forward by Koch in 1890, even though it was discarded by almost all other workers. As the result of many years of careful work, methods of its administration have been elaborated which do not produce the untoward symptoms seen in the early days of its use. Dr. Trudeau refuses to wax enthusiastic in its use, as do many of the men now using it, who have but a fraction of his experience with it; yet we gather from his

writings and addresses that he is satisfied that carefully given and in suitable cases the patient's recovery is not only hastened, but is apparently more permanent; there is less probability of a subsequent outbreak of the disease. In expressing his opinions Dr. Trudeau is most conservative, yet we believe that he has more confidence in tuberculin than he as yet feels he may express.

Tuberculin has apparently come to stay. It is not a specific in tuberculosis, yet we may have hope for an improved tuberculin which may prove a specific in pure infections with bacillus tuberculosis. We can scarcely hope to find one specific in advanced disease with mixed infection.

Tuberculin giving good results, physicians should understand its administration, or at least its therapeutic possibilities should they not wish to use it themselves. It will only fall again into disrepute if the use of it is not carefully governed.

I want to say a few words on behalf of those whose disease is arrested or healed and who must return to the old occupation, or seek a new one. It is one of the discouraging features of work amongst the poor, especially sanatorium treated patients, to see them going back to their old haunts (for in many cases new occupations are not to be found), only to relapse and their disease becoming again active. A necessary part of the work amongst the tuberculous poor is to provide out-of-door sleeping accommodation for them in their homes—this is an expense they themselves cannot meet, even to provide the extra clothing they require for out-of-door sleeping in our winter weather is a tax on their resources.

Beside the poor there is another class which we see in the cities and large towns. Young men and women who have returned to their work in offices, making a fair living, but in order to keep well they require large airy rooms or sleeping porches. These they cannot secure in the ordinary boarding house. A great boon would be conferred upon this class by someone who will undertake in each city the construction of a house on the outskirts in a good locality where provision is made for a sleeping porch off each room. It might be started with a moderate amount of money from some large-hearted man, but with proper management could readily pay good interest on the investment. A similar home for those with open tuberculosis but who must remain at work is also desirable, and it would be well, perhaps, to keep these classes separate. I trust that this work will be undertaken soon in many of our cities.

In addition to offering suitable quarters for those with healed pul-

monary lesions, many physicians would gladly refer to such an establishment patients under their care who have cervical adenitis and other closed tuberculosis infections.

Let us, too, in our agitation for sanatoriums for the poor, remember that in conjunction with them we need organizations to look after the family left at home with the father, the source of income, no longer able to provide for them. With the return of the patient, his lesion healed, or disease sufficiently arrested to allow him to take up some work we need a bureau of employment to find such occupations as are compatible with his condition. Take for example, a servant girl who, through a term in a sanatorium in the country or at home under skilled supervision, has become well. What is she to do? Most mistresses on learning where she has been or what disease she has had will not have her in the house and she has a hard time indeed. With a committee to look after such cases, much could be done to overcome this prejudice and to secure such place for the girl as would result in continued arrest of her disease.

We have always to remember that recovery from tuberculosis is more or less a relative term. With other than a limited lesion there is marked anatomical change, with consequent limitations, and though we see many patients restored to full usefulness, the vast majority of those who have had an open tuberculosis, owing to these changes in the lungs and direct or indirect change in other organs, can never hope to do full work again. This is one of our difficulties in dealing with tuberculosis, and brings out the great importance of the *after care* of the healed or arrested case, a great problem second only in importance to those measures by which we hope to arrest the disease. *Our care of the tuberculous must not cease when we close the history form after writing in, "discharged," "returns to work."*

THE

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THE MONTREAL TUBERCULOSIS AND HEALTH EXHIBITION.

We doubt if even those who for some months had been actively engaged in the arrangements, anticipated so remarkable a success for the recent Tuberculosis Exhibition. The idea and the name are not specially attractive. It is difficult to imagine that the public could be attracted by the contemplation of morbidity statistics, of photographs of the consumptive and his surroundings, of plans of sanatoria and models of the same, of shacks and tents, and the like. But the unforeseen has happened. From the first opening the exhibition was crowded by an interested throng and the crowds grew larger and larger until on the last afternoon it was so packed at one time that movement was impossible. Altogether not less than 60,000 persons visited it during the twelve days it was open, or about one out of every six of the population of this city. In short it was a pronounced success and it is difficult to estimate its effect in arousing an intelligent interest in health matters in all sections of the community. For it was open freely to and visited by all classes, from the boys and girls of the public schools (of whom no less than 25,000 were in attendance) to His Excellency the Governor-General.

What we regard as the main reason for this success, apart it may be from the admirable organization both of the exhibits and of the arrangements, in regard to which we shall be making no invidious distinction

if we mention the Secretary, Dr. F. B. Gurd, as deserving of all commendation for his untiring energy, is that the committee would from the first seem to have realized that tuberculosis is intimately dependent upon lack of attention to the laws governing good health in general, that they did not narrow down their work to the one matter of tuberculosis, its prevention and its cure, but gained the hearty co-operation of all the many agencies existing in our midst which devote themselves to improving the health of our people, French and English. The demonstrations in invalid cooking, in nursing, in the care of the teeth, and in house hygiene, were every whit as much centres of attraction as were the exhibits of lungs and other organs the seat of the tuberculous process, the statistical diagrams of the extent of tuberculosis in the city and province and the excellent series of evening lectures delivered by a succession of capable speakers, both from our midst and from a distance.

It was in short a health exhibition, and as such should do more to arouse the community to our existing deficiencies in public and private hygiene than anything that has gone before. We must not, however, be satisfied and self gratulatory over this one notable advance: we must not be satisfied for once to have aroused the interest of the people in these matters; rather this must be made the starting point for active effort along various lines. And we possess the framework for that advance. It may be said that we possess in the provincial and in the municipal by-laws ample powers to protect the people against themselves and against disease. The pity is that the laws, admirable on paper, are scarce enforced. We believe that it is even within our power to enforce notification of cases of tuberculosis. What is needed is that an enlightened public opinion strengthen the hands of the authorities to carry out the laws and by-laws. And here it is most satisfactory to know that we have the cordial support of the whole of the newspaper press of the city. One of the most striking features of the exhibition was the aid given it by the daily and weekly papers, both before its opening and during its continuance.

A notable crusade is being carried on at the present time by the *Standard* in the promotion of a purer milk supply, and already that is having its effect not only on the consumers but on the farmers supplying the city. Remembering the portentous infantile mortality of Montreal this crusade is only second in importance to the anti-tuberculosis campaign. But, we repeat, these are but integral portions of one great movement.

Perhaps the first specific movement to be actually taken in hand for which we would invoke the aid of the press is the putting into activity

of the laws bearing upon house sanitation. Few lessons were more constantly and consistently impressed by the lecturers and by the statistics afforded at the exhibition than the singularly close relationship between high tuberculosis and general death rate, overcrowding and deficient ventilation. What is needed is active inspection of the poorer lodging houses in this city (where overcrowding occurs to an appalling extent), prohibition of employment of cellars, and unlighted rooms, for living purposes, and, in short, the putting into the effect of the regulations which are already upon the statute book, regulations which, when carried out, as in England, have so materially lessened the general mortality. It is, in short, our slums which are the great hot-beds of disease, and there exists no valid reason why we should not immediately inaugurate a progressive policy of rendering them impossible. More than ever is this policy necessary at the present time with the steady influx of the low class and impoverished European immigrant.

Reviews and Notices of Books.

A Text-book of Diseases of Women, by Chas. B. Penrose, M.D., Ph.D., formerly Professor of Gynæcology in the University of Pennsylvania. Sixth Revised Edition. Octavo of 550 pages, with 225 original illustrations. Philadelphia and London: W. B. Saunders Company, 1908. Cloth, $3.75 net; half Morocco, $5.25 net. W. B. Saunders Company, Philadelphia and London. Canadian Agents, J. A. Carveth & Co., Limited, Toronto.

A text-book which has reached its sixth edition in less than eleven years may clearly be said to have met the needs of the class of readers for whom it was intended. That class is the numerous one of the medical student. In his preface the author says: "I have attempted to present the best teaching of modern gynæcology untrammelled by antiquated theories or methods of treatment."

For anatomy, physiology and pathology, readers are referred to general text-books on these subjects. This in a text-book for students implies some advantages. The book is relatively small and handy, and relatively inexpensive, facts which commend it to the average medical student If, however, the dissociation of the pathology of a disease from its symptoms and treatment has the effect of leading the student to regard it as unimportant, the result will be, to say the least, unfortunate.

These criticisms being made, we are pleased to add that the author's claims for his book are amply justified, and that with the medical student

of to-day the book will be as much of a favourite, to judge by its extensive sale, as it has been to past generations of students.

A REFERENCE HAND-BOOK FOR NURSES. By AMANDA K. BECK. Second edition. Philadelphia and London. W. B. Saunders Company, 1908. Canadian Agents, J. A. Carveth & Co., Limited, Toronto. Price, $1.25 net.

A sisterhood of nursing has grown up in the world during the present generation, which is better than a "profession." It is a world of its own, and a very interesting one. A woman who is a nurse is different from one who is not, and different from the woman she was before she began to be a nurse. There is a considerable literature growing up in that world,—literature in the sense that it exposes the minds of those who write it, and creates a body of opinion well knit together. For example, this book is dedicated to Miss McIsaac, whose own book is referred to elsewhere in these pages, and both authors offer opinions which must be taken account of.

This growing authority of the nurse is of importance to the medical profession and to the public. Miss Beck's hand-book contains much information skilfully arranged.

HYGIENE FOR NURSES. By ISABEL MCISAAC. New York: The Macmillan Company, 1908. Price, $1.25 net.

This book is issued by The Macmillan Company of Canada, which is doing so much to make Canadians familiar with the excellent publications of The Macmillans of London and New York. Miss McIsaac possesses a peculiar fitness for writing a book on nursing. She is a nurse; she has knowledge and sense; and she knows how to write. The book contains sound teaching; it is interesting,—entertaining even.

DISEASES AND SURGERY OF THE GENITO-URINARY SYSTEM, by FRANCIS S. WATSON, M.D., Senior Visiting Surgeon to the Boston City Hospital, Lecturer on Genito-Urinary Surgery in the Harvard Medical School, Boston, and JOHN H. CUNNINGHAM, Jr., M.D., Assistant Visiting Surgeon to the Boston City Hospital, Member of the American Association of Genito-Urinary Surgeons. In two octavo volumes containing 1,101 pages, with 454 engravings and 47 full-page coloured plates, mostly from original drawings. $12.00. Lea & Febiger, Publishers, Philadelphia and New York, 1908.

During the past few years many text-books dealing with genito-urinary matters have appeared from the publishers of both this continent and

Europe and most, indeed, with a good *raison d'être*. Up to the present the standard works have been almost exclusively continental in origin and to the student unfamiliar with French and German, much of genito-urinary interest and importance has been obtainable only at second hand. While the student's difficulty is not entirely removed by the publication of Watson and Cunningham's book, yet it is minimized.

The book has been long in preparation and bears throughout evidences of careful thought and arrangement; in addition it contains valuable points which no book up to the present possesses to the same degree. To be concise, it is the best text-book in English yet to come before us and covers the realm of genito-urinary surgery in a thorough and extensive manner, due the importance which the subject has attained in recent years. It is useful further as expressing in no equivocal manner the views held by its authors on many disputed points of pathology diagnosis and treatment.

To those interested in disease of the genito-urinary tract, this book will serve as a useful reference, the bibliography is extensive and references are conscientiously made throughout, a fact which considerably enhances its value and raises it above the level of the ordinary text-book. Many articles are treated at length and much statistical evidence collected for or against the points in question. This is especially the case in the chapters devoted to the discussion of bladder tumours and of new growths of the kidneys; to prostatic hypetrophy and subparietal injuries of the kidneys in all of which former publications from the authors have prepared us for the views expressed and have apparently stood the writers in good stead. Tuberculosis of the genito-urinary tract has been collected under one head and treated as an entity; a departure from the ordinary, but one which no one who has interested himself in the subject will call in question.

Applied anatomy, pathology and bacteriology are everywhere in evidence, and the views expressed are conservative and amply supported. The laboratories of the Boston City Hospital have served their turn in this production. We miss, however, the use of culture methods as applied to the differentiation of the gonococcus, methods which do clear up some of the doubts expressed; also we miss a reference to vaccine therapy and congestive treatment in gonorrhœal rheumatism procedures, which, though scarcely established, surely deserve mention in a work of this kind. Again, though the authors evidently rely on cystoscopy and ureteral catheterization, yet the chapter dealing with this subject is not on a par with the rest of the book.

The treatise on the prostate is especially well written and detail is not

lacking; a very fair statement of the history of prostatectomy is given Mr. Freyer is referred to as the "universal usurper of previously pre-empted prostatic privileges:" truly is the book written in Boston.

They strongly advocate surgical treatment of prostatic hypertrophy, showing that the present mortality is but little more than that following the introduction of catheter life.

A very practical feature is the quotation of illustrative cases and a still more useful one is the chapters dealing with operative measures and technique. The book is extremely well illustrated, especially those plates prepared by the authors' artists deserve mention. It is dedicated to Keyes, to whose work many references are made.

The printing and binding are excellent, and with the exception of the one word *clitorises* we have no fault to find with the typography.

Altogether, it is a book which few genito-urinary surgeons will care to be without.

R. P. C.

DISEASES OF THE GENITO-URINARY ORGANS AND THE KIDNEY, by ROBT. HOLMES GREENE, A.M., M.D., Professor of Genito-urinary Surgery, Medical Department of Fordham University. Genito-urinary Surgeon to the City and to the French Hospital, New York City, and HARLOW BROOKS, M.D., Assistant Professor of Clinical Medicine, University and Bellevue Hospital Medical School, Visiting Physician to the City Hospital, New Pork City. Second edition, revised and enlarged. W. B. Saunders Co. J. A. Carveth, Canadian Agents. $5.00.

It is scarcely one year since the first edition appeared and was reviewed in these pages. To what we then said we have little to add. The book is considerably enlarged, especially in that part dealing with diseases of the bladder and also in that section dealing with the functional examination of the kidney. Special features are the presentation of the physiology and medical diseases of the kidney written by a physician (Brooks) and the eye complications of kidney disease, etc., by an ophthalmic surgeon (Kalish). It is very concise; only the important diseases receive much attention; nevertheless, applied anatomy and physiology are in evidence. The arrangement of the matter is excellent and considerable space is allotted to the instrumental examination of these diseases. If we must criticize, we should say that such chapters as those dealing with tuberculosis of the kidney and hypertrophy of the prostate are not broad enough in view of modern ideas, and we should prefer a more personal touch in doubtful subjects. The book is an improvement on the first

edition, and the fact that a second edition is called for so soon is evidence that it has filled a vacancy.

R. P. C.

A Manual of Infectious Diseases, by E. W. Goodall, M.D., Lond., Medical Superintendent of the Eastern Hospital of the Metropolitan Asylum Board, and (the late) J. W. Washbourn, C.M.G., M.D., Lond., F.R.C.P., late Physician to Guy's Hospital, and Lecturer in the Medical School. Second edition, revised and enlarged, by E. W. Goodall, London. H. K. Lewis, 136 Gower Street, W.C., 1908, pp. xii and 426, demy 8vo, with 33 plates. Price, 14s net.

This manual appeared in 1896, several years before the lamented death of the senior author, and the present edition has been laid upon the shoulders of Dr. Goodall. The work of revision has been well done, and the reader will be glad to find that the work is absolutely up to date; tested by improvements which have been detailed in the current literature of this year one finds all possible additions made to the text.

The book in its first edition is well known; it will be recalled that in addition to chapters on all the important infectious diseases, there were also several sound chapters upon fever, infection, disinfection, the accidental rashes, and upon sore throat. The plates are good, and the diagrams even better; this statement is made, however, with the reservation that it is easy for one who is familiar with a disease to recognize that a photograph reproduces it, although the same photograph may not be very instructive to a student who does not know the appearance of the disease. We mean to say that human ingenuity has not yet arrived at any way of supplying a substitute for the patient; but as far as one can teach by uncoloured photographs, it is here done. We can unhesitatingly recommend the tone of this book, and say that the second edition is worthily improved.

J. McC.

Arteriosclerosis: Etiology, Pathology, Diagnosis. Prognosis. Prophylaxis and Treatment. By Louis M. Warfield, A.B., M.D., Instructor in Medicine, Washington University Medical Department; Physician to the Protestant Hospital, St. Louis, Mo., etc. Eight original illustrations. C. V. Mosby, Medical Book Co., St. Louis, Mo., 1908.

Dr. Warfield's book is better than it looks; it tends to the "grey paper with the blunt type" style, and deserves better embodiment. Prof. W. S. Thayer, in a short introduction, deplores the indiscriminate popular

use of the word arteriosclerosis, and indicates that we, as a profession, are not careful of our use of it. This is exemplified by the fact that another book lies before the reviewer at this moment, in which the term arteriosclerosis is defined in a way quite different from that in which Dr. Warfield defines it.

There is nothing especially new in the book: the material is well arranged and sequent. Abdominal arteriosclerosis seems to be perhaps made too definite an entity, although many authors have lately so defined it. The best part of the book is a sensible outlook on the entire question and an indication that the author is in the habit of using carefully all the good methods of examination, and when that is done, of thinking sensibly upon his findings. Thus, a chapter of practical suggestions at the end details many things which the physician will do well to remember, especially because the author recognizes how adequate prevention may be and how inadequate treatment.

J. McC.

ATLAS OF CLINICAL SURGERY FOR PRACTITIONERS AND STUDENTS, By Dr. PH. BOCKHEIMER; English adaptation by C. F. MARSHALL, M.D., F.R.C.S., with 150 colored plates from models, by F. KOLBOW, 3 volumes, large 8vo., $8.00 each. The Rebman Company, New York.

The attraction of this extensive work consists in the coloured reproductions of F. Kolbow's models from the Pathologic Institute of Berlin. The models are certainly beautifully reproduced and are very life-like in character. This mode of illustration was first introduced by Parisian dermatologists from the models of Baretta in the Hospital St. Louis in Paris. It is a very graphic way of teaching the surgery of the external parts. The material for the models was supplied chiefly from the clinic of Prof. von Bregmann. In a work where the illustrations are so universally good it is difficult to select any for praise, but special attention might be directed to the reproductions of cutaneous cancer, diseases of the breast, and the surgical affections of the tongue. The text is concise and well arranged, the descriptions of the various diseases are accurate and comprehensive. Mr. Marshall has done the translation well and correctly. The teaching of von Bergmann has been followed throughout and much space has been given to the section on treatment. We can heartily recommend this magnificently illustrated work to all who wish to get a practical knowledge of certain diseases.

GENERAL PATHOLOGY, By ERNST ZIEGLER; translated from the eleventh German edition by ALDRED SCOTT WARTHIN, Ph.D., M.D. William Wood and Co., New York, 1908.

Everyone who has been interested in pathology knows Ziegler, not so much for his researches in this subject, but for the volume on General Pathology which he has written. This book, along with those on Special Pathology, received high recognition and early became the standard text-books. Translations have been made into the English, French and Italian languages. This work, therefore, which has been known to all of us for many years, requires no introduction. With the rapid development of the researches in Pathology, new suggestions, theories and facts had to be recorded and embodied in the text, and this, along with the constant demand for Ziegler's works, has necessitated repeated editions.

As we go over the pages, we recognize many of the earmarks of the early editions, some of them we deplore in not expressing the most recent thought, while some of the plates from former editions are considerably worn. Dr. Warthin has, however, interlarded much of Ziegler's writings with up-to-date views, but we regret that these very important additions have been placed in the less-frequently-read fine print.

Ziegler's work, however, remains a standard to which all can refer, while the extensive bibliography preceding each chapter is most welcome to those wishing to consult original articles. This General Pathology has probably done more to educate the student and practitioner, in the principles underlying pathological lesions, than any other book.

"OBSTETRIC AND GYNECOLOGIC NURSING," by EDWARD P. DAVIS A.M., M.D. Third Edition, thoroughly revised. W. B. Saunders Publishers. Canadian agent J. A. Carveth & Co., Ltd., Toronto. Cloth, $1.75.

This work has proved deservedly popular, this being the third edition issued since its appearance in 1901. The simplicity of style and the very satisfactory arrangement of the work have largely contributed to its success. One great advantage of the book is that it does not attempt to teach obstetrics, but sticks to its subject, that is, nursing of obstetrical and gynecological cases. The work is especially strong on directions for the care and feeding of young children, while the section dealing with the disorders of infancy is very practical and is not too technical.

One notes with interest in the chapter on the development of the child, under the sub-heading "The Care of the Nerves," that the author

speaks of "the fondness of the nurse" as being "a natural encouragement for its growth." He states, very truly, that those who cannot control themselves in the presence of the minor annoyances of life are not fitted to care for children. The work is to be heartily commended not only to nurses, but to junior physicians.

REPORT FROM THE PATHOLOGICAL DEPARTMENT CENTRAL INDIANA HOSPITAL FOR INSANE, By G. F. EDENHARTER, M.D., Superintendent. William B. Burford, Indianapolis.

We appreciate the confidence in laboratory research which the Superintendent expresses in his introductory remarks. Dr. Edenharter says: "were it to fall to my lot to organize and construct a new institution for the care of the State's unfortunate insane, I would build and equip, as an adjunct, a department for pathological and other scientific investigations before commencing the construction of the administration building or kitchen; or in other words, I would deliberately place the new institution in such a position that the reception of patients or other business could not commence until every preparation had been made for the scientific prosecution of the medical work, and this as complete as the most advanced thought and modern methods could make it."

The book gives a resumé of the interesting material which between 1903 and 1906 has passed through the pathological department of this institution of a hundred beds.

PRINCIPLES AND PRACTICE OF MODERN OTOLOGY, by JOHN F. BARNHILL, M.D., Professor of Otology, Laryngology and Rhinology, Indiana University School of Medicine; and ERNEST DE W. WALES. B.S., M.D., Associate Professor of Otology, Laryngology and Rhinology, Indiana University School of Medicine; 575 pages, W. B. Saunders & Co., Philadelphia and London 1907.

This book of over five hundred pages is devoted entirely to otology; as necessary adjuncts to the study of ear diseases, it contains also chapters upon nasal and naso-pharyngeal conditions and upon intracranial complications.

The authors dedicate their work to all English-speaking students and practitioners of medicine. Accordingly we look for the treatment of the subject to be adapted to the use of the beginner as well as of the more advanced.

The chapter on the anatomy of the temporal bone is both well written and illustrated, but there is an unfortunate mixing of the several relationships as they are found in early and in adult life. Useful and

exhaustive tables are to be found at the end of the chapter showing the vascular and nervous supply of the several parts of the ear. When dealing with the physiology of the ear, the authors quote at length from Denker's "Otosklerose."

In the chapter upon functional tests, it must be pointed out that the Schwabach test has nothing to do with air conduction, but consists of a comparison of the bone conduction of the patient with that of a normally hearing individual. With this exception, the details of examination are well and clearly written. The authors devote much attention to diseases of the auricle and external meatus. Acute and chronic diseases of the tympanum and mastoid are treated exhaustively. Following the chapters upon suppurative diseases, come in natural order those upon intracranial complications. Operative methods are described in detail for treating the several conditions. The common but all important conditions of acute and chronic suppuration of the tympanum receive the full notice which they deserve.

The illustrations throughout are clear and good. We think there are too many illustrations depicted, e.g., different chisels and curettes, and too few illustrations of microscopical sections. The proof-readers have overlooked very few mistakes. We may point out on page 350, that silver nitrate solution is recommended in the strength of five grains to the ounce. Those who are fortunate to be in possession of the book, have a valuable store of information especially rich in the anatomical details, in the description of examination methods, and in the setting forth of the commoner forms of otitis.

H. S. M.

TEXT-BOOK OF OPERATIVE SURGERY, by WARREN STONE BICKHAM, M.D., Junior Surgeon, Touro Hospital, New Orleans; late Assistant Instructor in Operative Surgery, College of Physicians and Surgeons, New York; late Demonstrator of Operative Surgery, Medical Department, Tulane University of Louisiana. W. B. Saunders & Co. Philadelphia. Price $6.50 net.

The present volume is the third edition. The work includes surgical anatomy and operative technique involved in operations of general surgery. The author, quite properly, makes no apology for presenting the surgical anatomy for each operation considered. The work includes practically all modern methods, but unfortunately the author does not give his personal endorsement of the particular operation he has found most desirable, contenting himself with describing several methods, leaving the reader to decide which of these should be followed.

In the chapter on methods of treating ununited fracture, no reference is made to the steel plates introduced by Arbuthnot Lane. The reference to the use of Parkhill's Clamp gives no indication of the great difficulty in keeping the clamp in position, and the danger which exists of infecting the deep tissues.

The chapter on injuries to the blood vessels and methods for the repair of the same is well written. The chapter on operations upon the head isespecially good, while in the chapter on intestinal surgery much prominence is given to the use of the Murphy Button.

In the article on radical cure for hernia, no reference is made to the method suggested by Macewen or to that of Kocher, both of which are of value in selected cases.

The book is of twelve hundred pages, profusely illustrated by beautiful plates, a large number of which were especially drawn under the author's direction. The book is made up on very fine paper with clear type. The index is full and very complete.

On the whole the work commends itself from all points of view, and should be valuable as a guide in all operative surgery, including as it does the most recent methods.

J. A. H.

VACCINE THERAPY AND THE OPSONIC METHOD OF TREATMENT, by R. W. ALLAN, M.D.B.S., London. H. K. Lewis, 136 Gower St., London. (Second Edition).

The second edition of this work is revised and enlarged. The author points out the method of demonstrating opsonins in the blood, their nature and constitution, their formation in the body, their relationship to infection when introduced into the system and the methods of raising the opsonic index. The method and technique of determining the opsonic index, the preparation of the vaccines and the method of their administration are explained, and the value of the opsonic index in diagnosis, prognosis, and treatment pointed out.

The different infections by the various organisms are then described: tuberculosis, its etiology, diagnosis, types, and the method of differentiating them; the tuberculins, their properties and actions, and the conduct of cases both apyrexial and pyrexial, in using small therapeutic doses of tuberculin (a) by opsonic methods (b) by clinical signs, and the results so far obtained by such treatment.

The staphylococcus, streptococcus, pneumococcus, gonococcus and the bacillus coli, typhoid, and dysentery groups and the vaccine therapy of catarrh are similarly dealt with, as well as the micrococcus melitensis,

bacillus paralyticans, micrococcus neoformans, meningococcus and actinomycosis.

One chapter is devoted to the vaccine therapy of the various infectious eye diseases and an appendix added in which facts of importance in respect to certain bacteria are pointed out. Special methods for the detection of the tubercle bacillus in sputum, fæces, urine, methods of staining, the human and bovine species and the opsonic index in both types, in various cases of pulmonary phthisis, are thoroughly explained.

THE STUDENTS HAND-BOOK OF PHYSIOLOGY, by the late ARTHUR CLARKSON, M.B.C.M. Ed. Formerly Demonstrator of Physiology, Owen's College, Manchester, and Yorkshire College, Leeds; and DAVID A. TARQUHARSON, M.B.C.M Ed. T. T. P. & S. Glas. Professor of Physiology, St. Mungo's College, Glasgow; Prof. of Physiology, Royal Dick Veterinary College, Edinburgh; Lecturer on Physiology and Hygiene, Heriot-Watt College, Edinburgh. E. & S. Livingstone, Publishers, Edinburgh. 786 pages. 174 Illustrations. 12s. net.

This is without doubt one of the best text-books of physiology we have seen. It is also one of the smallest of the good books. It has an abundance of good illustrations, including diagrams, cuts of apparatus, tracings and microscopic sections. A feature of the book is that it presents the histological and embryological sides of physiology particularly well. It is written along conservative lines as might be expected from its joint authorship by two Edinburgh graduates. It is said to be the work of the late Dr. Clarkson, with the exception of the chapter on the central nervous system and part of that on the special senses, which are written by Dr. Farquharson.

It is interesting to note the stand taken by the authors on certain questions which are more or less under dispute. They advocate the myogenic theory of the heart beat as opposed to the neurogenic; the solution theory of fat absorption as opposed to emulsification; they suggest a compromise between the so-called vital and physical theories of lymph formation and claim that while the endothelial cells possess a certain secretary activity, the processes of osmosis and filtration play an important contributory role. In relation to the functions of the thyroid gland, they think that much of our supposed knowledge has been upset by the recent experiments of Swale-Vincent and Jolly so that we must almost begin over again. The account of the Pituitary body does not show much acquaintance with Prof. Schaefer's valuable work as recently described to the Montreal Medico-Chirurgical Society. We notice that

the authors exercise due caution in applying the results of experiments on the central nervous systems of the lower animals to man. They recognize, for instance, the dissappearance of the reflexes after division of the spinal cord in apes and man.

On the whole, we may say that the book is thoroughly sound and authoritative and represents a well-balanced judgment on nearly all important physiological questions.

W. S. M.

Medical News.

Dr. Wishart, who has been lately appointed Chief of the Ear, Nose and Throat Department of the Toronto General Hospital, has on that account resigned his position as Chief of that Department in the Hospital for Sick Children, which has devolved upon his Junior in the Service, Dr. Geoffrey Boyd.

Dr. Wishart has been elected a member of the Royal Society of Medicine, England.

The forty-second annual meeting of the Canadian Medical Association will be held in Winnipeg, on the 23rd, 24th, and 25th, August, 1909. The Chairman of the Local Committee of Arrangements is Dr. H. H. Chown, Winnipeg, and the Secretary Dr. Harvey Smith, Canada Life Building, Winnipeg. The President is Dr. R. J. Blanchard, Winnipeg; and the General Secretary, Dr. George Elliott, 203 Beverley St. Toronto.

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

The fourth regular meeting of the Society was held Friday evening, November 20th, 1908, Dr. J. Alex. Hutchison, President, in the Chair.

APHASIA, AUDITORY AND MOTOR, WITH RE-EDUCATION.

N. Viner, M.D., presented this case before the Society.

Colin K. Russel, M.D.—This has been a very interesting case to listen to, but I do not think Dr. Viner has entirely excluded middle ear disease, a common cause of deafness in early childhood. It is known that a child, especially of that age, just beginning to talk, may become entirely dumb after a short period of deafness. Apropos of Dr. Viner's

remarks with regard to the involvement of the graphic centre and the motor speech centre, a week or so ago I had the opportunity of seeing a patient who was an educated man, in fact he was a first year medical student, who got injured over the temporal region. He had an almost pure motor aphasia *i.e.*, he could not express himself in words, and at the same time, though he could write almost anything he wished to say, and he understood what was said to him almost completely, and could understand simple written instructions, he had a certain amount of intellectual impairment. This bears out Marie's contention regarding aphasia that the centre in the first temporal convolution is more that of an intellectual centre and the others no speech centres at all in the true sense, but mere collections of cells with motor functions. He could understand most things said to him, so that the auditory deafness was not at all extreme; yet there was a certain amount of intellectual impairment. He could not understand involved sentences and he could not do any involved arithmetic, etc. It was interesting in this case, too, to note that there was evidently a graphic centre apart from the motor speech centre.

N. VINER, M.D.—In reply to Dr. Russel's suggestion that the condition might be accounted for by a peripheral deafness I would say that: 1, such deafness would have to be total and bilateral; 2, it might, or might not be followed by motor aphasia; 3, seeing that according to Dr. Russel's hypothesis the motor cortex had not been involved, should motor aphasia supervene it must, of necessity, be preceded by a period of paraphasia or, as some would term it, paraphemia. Again, admitting the presence of nerve deafness, total in the left ear and partial in the right, how would one account for the partial restoration of hearing in the left ear, especially as such restoration took place at nine years of age and has not improved since then? (Adenoids generally do not atrophy at nine years, nor does regeneration of nerve start and cease suddenly). In short, granting the nerve deafness, one can explain it as due to the same inflammatory ear condition which ultimately invaded the left temporal lobe and probably Broca's area adjoining. What return of hearing there has been is due not to the conducting channels, *i.e.* the auditory nerves, but to the receiving apparatus, namely the perceptory apparatus in the temporal cortex—of the right side. This would lead us to the conclusion that the right auditory nerve was never totally deaf.

POTT'S PARAPLEGIA CURED BY THE PLASTER BED.

J. APPLETON NUTTER, B.A., M.D., presented this case before the Society.

W. G. TURNER, M.D.—Dr. Nutter is to be congratulated on the good results he has obtained in this case. What strikes one is the simplicity of the treatment and also the simplicity of the apparatus which makes it more or less applicable to any outpatient case. In these early cases the prognosis is very good, and it strikes one that in all cases, even when the paraplegia is marked and almost with complete loss of power, even in these where the patient is followed up and constantly under supervision, very good results may be obtained.

J. ALEX. HUTCHISON, M.D.—I think the Society is much indebted to Dr. Nutter for arranging to bring such a small child before the meeting, and we are very grateful for the trouble he has taken.

THE CUTANEOUS MANIFESTATIONS OF TERTIARY SYPHILIS.

G. GORDON CAMPBELL, M.D., read a paper on this subject.

E. M. VON EBERTS, M.D.—I would like to ask Dr. Campbell what his practice is with regard to the continuance of iodide after the lesions have healed, whether in the absence of a history of a thorough mercurial course the iodide is continued for a year or more, as recommended by some authors.

In connection with the remote reminders, of which Dr. Campbell has mentioned a case after 30 years, I would like to cite a case which came under my observation five years ago. The individual had been in New York as a drummer boy in the Northern army shortly before the Battle of the Wilderness and while there he was exposed. Two weeks later there developed a sore which became indurated. The army doctor told him that he had "the pocks," and without waiting for secondary symptoms, gave him mercurial pills, which he took for a period of six weeks. He had no recollection of any secondary symptoms. Thirty-four years later he developed an eruption over the right eyebrow in the course of the supra-orbital nerve. Without consulting a doctor he took six bottles of a "Sarsaparilla," (which contains potassium iodide), and the eruption disappeared. He came to me the following year with a recurrence, having been told by his family physician that the condition was cancerous. Under iodide of potash the lesion had almost completely healed at the end of 10 days. The interesting point here is that he had been free from all symptoms from the time of infection till 34 years afterwards. The case is one also in which the course of the mercurial treatment was decidedly curtailed.

A. G. MORPHY, M.D.—I should like to ask Dr. Campbell if he ever found any symptoms of coryza in his administration of the iodides, and whether he found, as claimed by some, that the coryza disappeared when

the dose was increased. I have read of such a thing, but have not come across it. I should like to ask also if Dr. Campbell would give a brief account of his treatment of the secondary symptoms, as regards the administration of mercury, whether by pills, inunctions or hypodermically, and for how long a period at one time he gives the drug.

A. R. PENNOYER, M.D.—I would like to ask Dr. Campbell, although digressing from the strict tenor of his paper, with regard to the diagnosis of syphilis. At the present time I take it that although the spirochætæ is positive evidence of a case being syphilitic, the absence of it does not negative the possible presence of the disease, and there are certain cases, we have all seen them, where we would like to know how much evidence one has to have in order to decide as to the nature of the condition. If, for instance, in a case like this, which came to me during the past week: A young man who had gonorrhœa three years ago, who was cured in a short time and had no untoward effects from it. For the past six weeks however, he has been treated by a homœpathic physician for a condition of the throat and he came to me to see what I thought of it. There was an ulcer spreading from the left tonsil upon the left anterior pillar, another on the right side and three on the soft palate. This led me to go into the history rather carefully, and on examination I found he had enlarged cervical glands, those in the back of the neck rather hard, the inguinal glands enlarged and over the front of the upper arm and extending on to the shoulder and more or less on the body was a maccular rash in association with which there was very evident brownish stains. Now, if one could not find the spirochætæ from a scraping from these ulcers, would it be regarded as good practice to tell this man that he had syphilis, and put him on antisyphilitic treatment?

I would also refer to another case I had four years ago (Dr. von Eberts also saw the case with me). This man gave a definite history of syphilis six years previously for which he had been treated by a professor in Stockholm for a period of over six months, who told him that the treatment was so thorough that he could pronounce him cured in that time. Here in Montreal after a subsequent exposure he developed a regular soft sore and, with this history of syphilis, knowing that it is of rare occurrence to have a second infection, I at first regarded it as chancroid and treated it as such for six or seven weeks. It spread and I had come to the conclusion that it was malignant, but before taking a snipping from the sore for examination, I put him on a course of iodide in large doses and in ten days it was all cured. Here was a definite case of tertiary lesion, on the genitals.

G. P. GIRDWOOD, M.D.—What strikes me in Dr. Campbell's paper is

the number of cases where one recognizes the tertiary form of the disease without history of previous infection. Is it possible that the tertiary form may be communicable, or even the secondary form, without a previous contagion? This has been a moot point for many years, that is, its communicability in these stages without a previous condition of infection. I rather believe it is, that you may communicate this disease without having primary sores.

J. ALEX. HUTCHISON, M.D.—I should like to add a word to confirm the view held by Dr. Pennoyer. It does seem surprising that cases of this nature are overlooked, and I think possibly the explanation may be that we follow very largely the belief that was present in London many years ago, where it was assumed that every case that came to the outdoor was syphilitic until it was proven to be otherwise. I think all hospital men are rather of that view, so that the recognition of these conditions comes easier to us than it would to a man in a small place where the disease is not so well known and recognized. The point mentioned by Dr. Pennoyer is a very interesting one, one does not always see the primary sores before a general constitutional condition has taken place.

G. GORDON CAMPBELL, M.D.—With regard to the length of time for keeping up administration of the iodide, it has been the rule in hospital practice to keep it up for 6 or 7 months at least, if the patient attends. It is very rarely that the patient will come back after the signs of the disease have disappeared. In those cases where we have kept it up the disease has not recurred in any I have been able to follow for 5 or 6 years. The patient with the ulcer on the left shoulder of which the photograph was shown was a most interesting case. He was in the hospital while I was house surgeon there in 1889 with a lesion on the shoulder and on the forehead. He was treated until they were completely healed and we did not see him again until he walked into the medical clinic five years ago with symptoms of cerebral syphilis, paresis, etc., suggesting a syphilitic tumour of the brain. On having him stripped I recognized the healed ulcer on the shoulder. He died from the disease of the brain. Here the disease did not return in the skin. The general opinion of dermatologists is that the iodide has no curative effect on the disease itself, but has the remarkable power of causing the absorption of the granulomata; and that it is wise after the lesions have disappeared to give a course of the mercurials as a preventative against recurrence. I may also say that the iodide does not seem to have the same effect on visceral lesions as it does on the skin. It is notorious that patients who come to the hospital with the so-called leucoplakia and ulcers of the tongue, recover from the skin lesions at once, but with the

tongue the disease may last for years. I have one patient where I have tried to keep down a lesion of the tongue for years, and yet it will return while the skin eruption has never returned. With regard to the production of coryza it is very seldom one gets an intolerance of the iodide in the tertiary syphilitic. When it does occur it is very annoying to have to stop the treatment. I have never administered the iodide in any but the one way, that is in large doses. So far as the treatment of secondary syphilis goes, my own plan is to state to the patient plainly that it is a serious disease, and in most cases tell him what it is and that he can be cured if he takes treatment for three years. If first seen during the primary period, I ask the patient to await further symptoms and tell him what the secondary symptoms will be, so that if he doubts my decision he may be convinced that he has the disease before beginning the treatment. There is no difficulty then in inducing him to carry it on for three years. We have tried all the different forms of administration of mercury except fumigation. The inunctions are certainly most rapid, and if they can be carried out by trained attendants they are very effecual. The simplest method is to use Hutchinson's pills, grey powder,—3, 4, or 5 pills a day until the lesions disappear. The patient gets a sufficient supply to last for a considerable time, and I generally tell him to take the medicine from the 1st to the 20th day of every month. This is easy to remember and allows ten days entirely free in every month. When I was first connected with the clinic the proto-iodide pill was the popular one and we used it in every case, but both Dr. Shepherd and myself came to the conclusion that there were more cases of tertiary lesions after this compound than with the metallic mercury pill. In the matter of diagnosis, failure is mainly because of the fact that one places too much importance on the absence of a history of syphilis. In doubtful cases such as Dr. Pennoyer has mentioned, the appearance of the ulcer alone would suggest either a late secondary or a tertiary syphilide. A short course of mercury would immediately show whether it was syphilis or not. In reference to Dr. Girdwood's remarks about whether the tertiary form was communicable, I believe it rarely is, but that it must be in some cases is evident now that the spirochætæ have been found in tertiary lesions, and if that is so they must be communicable. We have syphilis of the third generation, and we could not have this unless such communicability did occur.

THE ORGANISM OF RHEUMATISM.

A. H. MacCordick, M.D.—Demonstrated the specimen.

F. G. Finley, M.D.—I think this observation is a very interesting

one. In my service attempts have often been made to obtain cultures from the joints and blood of rheumatic patients, but have hitherto failed. I would like to know if it is possible to increase the virulence of the pneumococcus so as to produce pathological effects.

C. W. DUVAL, M.D.—Dr. MacCordick's case is of great interest in that he obtains an organism from various parts of the body which, in my opinion, resembles that described by Poynton and Payne. I have tried to isolate their organism from the joints of acute articular rheumatism, but have always failed, which is also the experience of other laboratory workers. Here is presumably a fatal case of multiple acute arthritis caused by a coccus corresponding to Poynton and Payne's organism. Whether it is the cause of acute articular rheumatism or rheumatic fever cannot be stated. The most interesting feature in the case is the absence of a primary focus of infection,—such as a pneumonia, or a naso-pharyngeal condition. The question of its virulence for rabbits is of no etiological importance in this connection. Virulent cultures of pneumococci or streptococci from cases of fatal pneumonia or streptococcic endometritis, etc., may be completely virulent for the ordinary laboratory animals. At present in the laboratory of the Montreal General Hospital we have cultures of streptococcus pyogenes and pneumococcus from fatal cases of pneumonia that are not virulent for rabbits, guinea-pigs and mice. The virulence of these, however, can by repeated animal passage be raised. The organism described by Poynton and Payne is, in my opinion, a strain of the pneumococcus or streptococcus pyogenes.